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Bibliography of the Interagency Energy/Environment R and D Program

(U.S.) Environmental Protection Agency
Washington, DC

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Energy, Minerals and Industry

EPA

Decision Series

Bibliography

# of the

Interagency Energy/Environment R&D Program

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SPRINGFIELD, VA. 22161

The Energy/Environment R&D Decision Series

Some of the basic problems facing our society today involve the use of our energy resources and the consequent effects on our environment. These problems affect everyone, and everyone has an interest in their resolution. But the technical aspects of these problems make it difficult for a major portion of the interested public to understand and participate in the decision-making process. This volume contributes to the bridging of this information gap.

The Energy/Environment R&D Decision Series was inaugurated late in 1976. The series presents, in an easily understood and informative manner, selected key issues and findings of the Federal Interagency Energy/Environment Research and Development Program, which was initiated in fiscal year 1975. Planned and coordinated by the Environmental Protection Agency (EPA), the Interagency Program sponsors more than 1,000 research projects ranging from the analysis of health and environmental effects of energy systems to the development of pollution control technologies.

If you have any comments, please write to Editor, RD-681, US EPA, Washington, DC 20460. This document is available through the National Technical Information Service, Springfield, VA 22161. Mention of trade names and commercial products herein does not constitute EPA endorsement or recommendation for use.

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Bibliography
of the
Interagency Energy/Environment R&D Program

United States Environmental Protection Agency
Office of Research and Development
Office of Energy, Minerals and Industry

August 1979

Contents

Introduction 1

How to Use the Bibliography 2

How to Obtain the Documents 3

Control Technology Program 5

Fuel Processing, Preparation and Advanced Combustion 7

Fluidized Bed Combustion 9

Coal Cleaning 19

Synthetic Fuels 27

Fuel Extraction 41

Environmental Impact of Conventional and Advanced Energy Systems 57

Integrated Technology Assessment 59

Waste Heat/Waste Products 69

Conventional Combustion Environmental Assessment 83

Conservation and Advanced Systems 99

Flue Gas Sulfur Oxide Control 109

Nitrogen Oxide Control 131

Flue Gas Particulate Control 149

Health and Environmental Effects Program 181

Measurement Systems and Instrumentation 183

Transport and Fate 207

Health Effects 213

Ecological Effects 217

Decision Series Publications 225

Title Index 229

Author Index 263

EPA Report Number Index 297

Introduction

The Interagency Energy/Environment Research and Development Program which is comprised of more than a dozen federal agencies and departments, is coordinated by the Office of Energy, Minerals and Industry within EPA's Office of Research and Development.

It was created to provide a means of communication among the Federal research community, policy-level decisionmakers, and the interested public. This type of a communication network has proven to be a most effective way to coordinate the Federal research effort and ensure that appropriate energy/environmental research is being conducted without duplication of effort and funding.

The Interagency Program integrates research efforts in two main categories: Health and environmental effects of energy systems and development of environmental control technologies.

This bibliography lists publications resulting from research and development (R&D) performed under the auspices of the Interagency Program. The publications contained herein range from the Program's most current R&D and date back to the Program's inception in 1975. It has been designed to be used with three companion documents, each of which explores different facets of the Program.

> **The Interagency Energy/Environment R&D Program Status Report.** The Status Report covers, in executive summary format, the entire scope of the Interagency Program. Included are descriptions of the program today, its history, and its future goals and directives.
>
> **Fiscal Year 1977 Research Program Abstracts of the Interagency Energy/Environment Program.** This report contains the project descriptions of the $96 million in FY 1977 R&D projects funded and coordinated by the Interagency Program. Project descriptions not only represent past and present research and development, but also illustrate the full range of the Program's energy-related research.
>
> **Who's Who V—Interagency Energy/Environment R&D Program Directory and Index.** This directory lists some 500 key federal officials involved in various fields of energy-related research. **Who's Who V** identifies all R&D areas in the Interagency Program as well as the names, addresses, and phone numbers of the individuals responsible for each project.

All four documents are intended to serve the Interagency Program's goal of formulating a technical information system that provides access and communication among the researchers, decisionmakers, and interested public.

How To Use The Bibliography

For user convenience, this bibliography and the three companion documents have been arranged by the two main R&D programs of the Interagency Program: The Control Technology Program and the Health and Environmental Effects Program.

Control Technology Program

- Fuel Processing, Preparation, and Advanced Combustion
  - Fluidized Bed Combustion
  - Coal Cleaning
  - Synthetic Fuels
- Fuel Extraction
- Environmental Impact of Conventional and Advanced Energy Systems
  - Integrated Technology Assessment
  - Waste Heat/Waste Products
  - Conventional Combustion Environmental Assessment
  - Conservation and Advanced Systems
- Flue Gas Sulfur Oxide Control
- Nitrogen Oxide Control
- Flue Gas Particulate Control

Health and Environmental Effects Program

- Measurement Systems and Instrumentation
- Transport and Fate
- Health Effects
- Ecological Effects

For each of the main programs, under each category heading is a listing of publications which apply to that particular category. The publications are listed by EPA report number, with current documents listed first. Each publication is presented in the following format:

- EPA number and NTIS number
- Title
- Author(s)
- Sponsoring Agency
- Project Officer, No. Pages
- Performing Organization
- A brief abstract of the publication

For further convenience, three indexes appear in the last section of the bibliography. All reports are cross-indexed by title, author, and EPA report number, with each index showing the page number of the desired document.

How To Obtain The Documents

The publications which have been assigned NTIS numbers in the bibliography are available from:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Phone: 703-557-4650

Information concerning the title, authors, EPA number, and NTIS number should be enclosed with each request for documents. However, NTIS may be contacted to obtain the current price and availability for appropriate documents.

For information on reports which do not have NTIS numbers, contact:

Pat Folkers
EPA/ERIC
Cincinnati, OH 45268
Phone: 513-684-8414

Control Technology Program

The Control Technology Program encompasses six major research areas, each playing an important role in developing environmentally sound plans for extracting and utilizing our country's energy resources as well as addressing the probable environmental impacts of emerging energy technologies such as coal gasification and liquefaction, oil shale, and geothermal.

The program is designed to provide information on the types and quantities of pollutants released through extraction and combustion processes and to develop or stimulate the development of control options where necessary.

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Fuel Processing, Preparation and Advanced Combustion

This program participates in the development of advanced technologies for fossil fuel processing by providing environmental assessments, bench-scale research, technology assessments, and guidance in process control technology. The program will work in close cooperation with the Department of Energy process development and environmental programs to identify and quantify all residuals from fluidized bed combustors, synthetic fuels from coal processes, oil shale development, and coal cleaning. Comprehensive environmental assessments will be performed for these technologies to anticipate the severity of each environmental threat and corresponding means for control.

For ease of reference, this program category is divided into three subcategories which follow:

- Fluidized Bed Combustion
- Coal Cleaning
- Synthetic Fuels

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Fluidized Bed Combustion

This program includes the characterization of effluents and emissions, assessment of related environmental impacts, and development and evaluation of necessary pollution control technology for fluidized bed combustion. The results of this effort are used as input in the Agency's standard setting process.

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EPA-600/7-79-048, NTIS-PB293-225

Title: Preliminary Environmental Assessment of the Lignite-Fired CAFB
Author(s): A. S. Werner, C. W. Young, W. Piispanen, B. M. Myatt
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Samuel L. Rakes No. Pages: 253
Performing Organization: GCA Corporation

Abstract: The report gives results of a preliminary environmental assessment (EA) of the lignite-fired Chemically Active Fluid-Bed (CAFB) process. It follows an earlier EA of the oil-fired CAFB.

EPA-600/7-79-063b, NTIS-

Title: Level 2 Chemical Analysis of Fluidized-Bed Combustor Samples
Author(s): L. E. Ryan, R. G. Beimer, R. F. Maddalone
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Walter B. Steen No. Pages: 200
Performing Organization: TRW, Inc.

Abstract: The report gives results of a Level 1 data evaluation and prioritization and the Level 2 environmental assessment (EA) chemical data acquired on a set of fluidized-bed combustor (FBC) particulate samples.

EPA-600/7-79-066, NTIS-

Title: Chemically Active Fluid-Bed Process for Sulphur Removal During Gasification of Heavy Fuel Oil--Fourth Phase
Author(s): A. W. Ramsden, Z. Kowszun
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Samuel L. Rakes No. Pages: 341
Performing Organization: Esso Research Centre

Abstract: The report gives results of Phase 4 of a study on the CAFB process for gasification/desulfurization of liquid and solid fuels in a bed of hot lime.

EPA-600/7-78-005, NTIS-PB278-332/AS

Title: Alternatives to Calcium-Based SO_2 Sorbents for Fluidized-Bed Combustion: Conceptual Evaluation
Author(s): Richard A. Newby, Dale L. Keairns
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 146
Performing Organization: Westinghouse Research and Development Center

Abstract: The report gives results of a conceptual engineering evaluation to screen supported metal oxides as alternatives to natural calcium-based sorbents (limestones and dolomites) for SO_2 control in atmospheric and pressurized fluidized-bed combustion (FBC) processes.

EPA-600/7-78-039, NTIS-PB281-317/AS

Title: Regeneration of Calcium-Based SO_2 Sorbents for Fluidized-Bed Combustion: Engineering Evaluation
Author(s): R. A. Newby, S. Katta, D. L. Keairns
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 146
Performing Organization: Westinghouse Research and Development Center

Abstract: The report gives results of an engineering evaluation of regeneration of calcium-based SO_2 sorbents (limestone and dolomite) for application in both atmospheric and pressurized fluidized-bed combustion (FBC) processes.

EPA-600/7-78-050, NTIS-PB281-321/AS

Title: Evaluation of Trace Element Release from Fluidized-Bed Combustion Systems
Author(s): M. A. Alvin, E. P. O'Neill, L. N. Yannopoulos, D. L. Keairns
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 105
Performing Organization: Westinghouse Research and Development Center

Abstract: The report gives results of an investigation of four trace elements: lead, beryllium, mercury, and fluorine.

EPA-600/7-78-069, NTIS-PB284-534

Title: Miniplant Studies of Pressurized Fluidized-Bed Coal Combustion: Third Annual Report
Author(s): R. C. Hoke, R. R. Bertrand, M. S. Nutkis, L. A. Ruth, M. W. Gregory, E. M. Magee, M. D. Loughnane, R. J. Madon, A. R. Garabrant, M. Ernst
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 208
Performing Organization: Exxon Research and Engineering Company

Abstract: The report presents further results of studies of the environmental aspects of the pressurized fluidized-bed coal combustion process, using the 218 kg coal/hr 'miniplant' continuous-combustion/sorbent-regeneration system (0.63 MW equivalent), and a 13 kg coal/hr bench-scale system.

EPA-600/7-78-077, NTIS-PB282-089/AS

Title: Advanced Oil Processing/Utilization Environmental Engineering: EPA Program Status Report
Author(s): P. P. Turner, S. L. Rakes, T. W. Petrie
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: P. P. Turner No. Pages: 104
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The report gives the status of EPA/IERL-RTP's Advanced Oil Processing Program. It projects the amounts and normal practice and patterns of the use of residual oil and the contaminants in residual oil, using emission standards as a yard stick to indicate where potential problems exist.

EPA-600/7-78-135, NTIS-PB288-584

Title: Characterization of Solid Residues from Fluidized-Bed Combustion Units
Author(s): James L. Crowe, Stephen K. Seale
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 40
Performing Organization: Office of Power, TVA

Abstract: The report gives results of physical and chemical characterizations of samples of spent bed material and of flyash (carryover elutriated from the bed) from three experimental atmospheric and pressurized fluidized-bed combustion (FBC) units.

EPA-600/7-78-166, NTIS-PB290-914

Title: Design and Construction of a Fluidized-Bed Combustion Sampling and Analytical Test Rig
Author(s): H. Dehne
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: John H. Wasser No. Pages: 157
Performing Organization: Acurex Corporation/Energy and Environmental Division

Abstract: The report describes the design, construction, and installation of a fluidized-bed coal combustion sampling and analytical test rig to be used by IERL to investigate the emission characteristics of fluidized-bed combustors.

EPA-600/7-77-009, NTIS-PB266-564/AS

Title: Procedures Manual for Environmental Assessment of Fluidized-Bed Combustion Processes
Author(s): H. I. Abelson, W. A. Lowenbach
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. B. Kuykendal No. Pages: 300
Performing Organization: The Mitre Corporation

Abstract: The document describes recommended procedures for sampling and analysis, for eventual use by source testing contractors, in support of the environmental assessment of fluidized-bed combustion (FBC) technology.

EPA-600/7-77-011, NTIS-PB264-528/AS

Title: Application of Fluidized-Bed Technology to Industrial Boilers
Author(s): M. H. Farmer, E. M. Magee, F. M. Spooner
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 170
Performing Organization: Exxon Research and Engineering Company

Abstract: This report was cosponsored by EPA, ERDA, and FEA and gives results of a paper study of the application potential of coal-fired fluidized-bed boilers (FBB's) in the industrial use sector. It considers the ability of coal-fired FBB's to meet the requirements of industrial users, including cost, reliability, maintainability, design, and performance requirements.

EPA-600/7-77-012, NTIS-PB265-354/AS

Title: The U.S. Environmental Protection Agency's Fluidized-Bed Combustion Program, FY 1976
Author(s): Not identified
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 200
Performing Organization: Battelle-Columbus Laboratories

Abstract: The report describes the objectives, content, and fiscal year 1976 progress of the research and development program being conducted by the EPA for environmental characterization of the fluidized-bed combustion (FBC) process. EPA's FBC program is a contract program, utilizing a variety of contractors, aimed at ensuring that all potential environmental problems associated with this developing energy technology are identified and adequately addressed.

EPA-600/7-77-027, NTIS-PB274-947/AS

Title: First Trials of CAFB Pilot Plant on Coal
Author(s): D. Lyon
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Samuel L. Rakes No. Pages: 45
Performing Organization: Esso Research Centre

Abstract: The report gives results of a minirun, carried out on a 0.75-MWe continuous, chemically active fluidized-bed (CAFB) pilot plant during July-August 1976, as part of a program to extend the CAFB process to operate on coal. The quality of the gas produced was similar to, and the desulfurizing efficiency on coal appeared to match or exceed, that for oil.

EPA-600/7-77-029, NTIS-PB266-827-AS

Title: Sorbent Selection for the CAFB Residual Oil Gasification Demonstration Plant
Author(s): E. P. O'Neill, D. L. Keairns, M. A. Lavin
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Samuel L. Rakes No. Pages: 32
Performing Organization: Westinghouse Research Laboratories

Abstract: The report gives results of evaluations of limestones from Texas and Mexico as candidate sulfur sorbents for the chemically active fluid-bed (CAFB) gasification demonstration plant at San Benito, Texas.

EPA-600/7-77-034, NTIS-PB271-514/AS

Title: Method for Analyzing Emissions from Atmospheric Fluidized-Bed Combustor
Author(s): E. L. Merryman, A. Levy, G. W. Felton, K. T. Liu, J. M. Allen, H. Nack
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Walter B. Steen No. Pages: 75
Performing Organization: Battelle-Columbus Laboratories

Abstract: The report describes an experimentally developed method to comprehensively sample and analyze an atmospheric-pressure fluidized-bed combustion (FBC) unit. The method is aimed at providing a cost and information effective environmental assessment of FBC units.

EPA-600/7-77-054, NTIS-PB269-556/AS

Title: Preliminary Environmental Assessment of Coal-Fired Fluidized-Bed Combustion Systems
Author(s): Paul F. Fennelly, Donald F. Durocher, Hans Klemm, Robert R. Hall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 150
Performing Organization: GCA Corporation

Abstract: The report gives results of a preliminary evaluation of potential pollutants which could be generated in coal-fired fluidized-bed combustion (FBC) processes. The primary emphasis here is on the 'other' pollutants: organic compounds, trace elements, inorganic compounds (other than SO_2 and NO_x), and particulates.

EPA-600/7-77-107, NTIS-PB272-722/AS

Title: Studies of the Pressurized Fluidized-Bed Coal Combustion Process
Author(s): R. C. Hoke, R. R. Bertrand, M. S. Nutkis, D. D. Kinzler, L. A. Ruth, M. W. Gregory, E. M. Magee
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 210
Performing Organization: Exxon Research and Engineering Company

Abstract: The report gives results of studies of the environmental aspects of the pressurized fluidized-bed coal combustion process, using two experimental facilities: a 218 kg coal/hr "miniplant" continuous combustion/sorbent regeneration system (0.63 MW equivalent), and a 13 kg coal/hr "batch" combustion unit.

EPA-600/7-77-114, NTIS-PB276-843/AS

Title: Chemically Active Fluid Bed (CAFB) Process Solids-Transport Studies
Author(s): John A. Bazan
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Samuel L. Rakes No. Pages: 400
Performing Organization: Foster Wheeler Energy Corporation

Abstract: The report describes cold-modeling efforts directed toward the development of a solids-transport system capable of transferring 40,000 lb/hr of bed material between two operating fluidized beds of a chemically active fluidized bed (CAFB) gasification/desulfurization commercial demonstration unit.

EPA-600/7-77-126, NTIS-PB280-751/AS

Title: Utility Boiler Design/Cost Comparison: Fluidized-Bed Combustion vs. Flue Gas Desulfurization
Author(s): John T. Reese, TVA Project Officer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 350
Performing Organization: Tennessee Valley Authority

Abstract: The report gives results of a conceptual design, performance, and cost comparison of utility scale (750-925 MWe) coal-burning power plants employing three alternative technologies: conventional boiler with a stack gas scrubber (CWS), atmospheric-pressure fluidized-bed combustion (AFB), and pressurized fluidized-bed combustion/combined cycle (PFB).

EPA-600/7-77-138, NTIS-PB276-974

Title: Supportive Studies in Fluidized-Bed Combustion
Author(s): A. Jonke, G. Vogel, I. Johnson, S. Lee, J. Lenc, A. Lescarret, J. Montagna, F. Nunes, J. Shearer, R. Snyder, G. Smith, W. Swift, F. Teats, C. Turner, I. Wilson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Walter B. Steen No. Pages: 200
Performing Organization: Argonne National Laboratory

Abstract: The report gives results of studies supporting the development of atmospheric and pressurized fluidized-bed combustion (FBC) of coal. It includes laboratory and bench-scale studies to provide needed information on combustion optimization, regeneration process development, solid waste disposal, synthetic SO_2-sorbent studies, emission control and other tasks.

EPA-600/7-76-011, NTIS-PB260-478/AS

Title: Studies of the Pressurized Fluidized-Bed Coal Combustion Process
Author(s): R. C. Hoke, R. R. Bertrand, M. S. Nutkis, D. D. Kinzler, L. A. Ruth, M. W. Gregory
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 211
Performing Organization: Exxon Research and Engineering Company

Abstract: The report gives results of studies of the environmental aspects of the pressurized fluidized-bed coal combustion (FBCC) process, using two experimental facilities: a new 218 kg coal/hr "miniplant" combustor (0.63 MW equivalent), and a 13 kg coal/hr "batch" combustion unit.

EPA-600/7-76-017, NTIS-PB262-001/AS

Title: Preliminary Environmental Assessment of the CAFB
Author(s): A. S. Werner, C. W. Young, M. I. Bornstein, R. M. Bradway, M. T. Mills, D. F. Durocher
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Samuel L. Rakes No. Pages: 324
Performing Organization: GCA Corporation

Abstract: The report gives results of a preliminary environmental assessment of the Chemically Active Fluid Bed (CAFB) process. All waste streams contributing air, water, and solid waste pollutants were evaluated in terms of emission rates and potential environmental effects.

Coal Cleaning

This program includes the characterization of effluents and emissions, assessment of related environmental impacts, and development and evaluation of necessary pollution control technology for coal cleaning processes. The results of this effort are used as input in the Agency's standard setting process.

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EPA-600/7-79-025a, NTIS-

Title: Fuel Contaminants: Volume 3. Control of Coal-Related Pollutants
Author(s): E. J. Mezey, S. Min, B. R. Allen, W. C. Baytos, S. Singh
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Lewis D. Tamny No. Pages: 123
Performing Organization: Battelle-Columbus Laboratories

Abstract: The report gives results of a study to identify strategies for removing pollutants from coal and coal-derived liquids.

EPA-600/7-79-025b, NTIS-PB293-210

Title: Fuel Contaminants: Volume 4. Application of Oil Agglomeration to Coal Wastes
Author(s): E. J. Mezey, S. Min, D. Folsom
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Lewis D. Tamny No. Pages: 85
Performing Organization: Battelle-Columbus Laboratories

Abstract: The report gives results of a study of the application of oil agglomeration to coal wastes. Early studies indicated that, although agglomeration can effectively remove much of the ash forming minerals, it was unable to separate the liberated pyrite from coal.

EPA-600/7-79-051, NTIS-

Title: Characterization of Coal Pile Drainage
Author(s): Doye B. Cox, Tien-Yung J. Chu, Richard J. Ruane
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Michael C. Osborne No. Pages: 90
Performing Organization: Tennessee Valley Authority

Abstract: The report gives results of sampling programs at two TVA coal-fired steam plants. Coal samples were collected from the plants for development and application of a shaker-type elution test for coal analysis.

EPA-600/7-79-068, NTIS-

Title: Revegetating Processed Oil Shale and Coal Spoils on Semi-Arid Lands - Interim Report
Author(s): Neil Frischknecht, Robert B. Ferguson
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 55
Performing Organization: U. S. Department of Agriculture

Abstract: Forest Service revegetation studies on TOSCO II processed shale at Sand Wash, eastern Utah, and at Davis Gulch, western Colorado involved the use of amendments on processed shale without leaching salts.

EPA-600/7-79-072, NTIS-

Title: EPA-Interagency Coal Cleaning Program: FY 1978 Progress Report
Author(s): Robin D. Tems
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James D. Kilgroe No. Pages: 110
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report reviews the progress of EPA's interagency coal cleaning program for 1977. Research into the methodology and economics of physical coal cleaning has continued.

EPA-600/7-79-073a, NTIS-

Title: Environmental Assessment of Coal Cleaning Processes: Master Test Plan
Author(s): D. A. Tolle, D. W. Neuendorf, P. Van Voris
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James D. Kilgroe No. Pages: 72
Performing Organization: Battelle-Columbus Laboratories

Abstract: The report gives a master test plan, presenting the objectives and general structure of a field testing program designed for an environmental source assessment of coal cleaning processes.

EPA-600/7-78-002, NTIS-PB276-769

Title: Engineering/Economic Analyses of Coal Preparation with SO_2 Cleanup Processes for Keeping Higher Sulfur Coals in the Energy Market
Author(s): The Hoffman-Muntner Corporation
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D. C.
Project Officer: No. Pages: 242
Performing Organization: The Hoffman-Muntner Corporation

Abstract: This report, prepared by the Bureau of Mines, is an analytical assessment defining the potential economics of physical coal desulfurization followed by flue gas desulfurization as a means for increasing the attractiveness of some of the U.S. higher sulfur content coals.

EPA-600/7-78-034, NTIS-PB277-408/AS

Title: Physical Coal Cleaning for Utility Boiler SO_2 Emission Control
Author(s): E. H. Hall, L. Hoffman, J. Hoffman, R. A. Schilling
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James D. Kilgroe No. Pages: 102
Performing Organization: Battelle Memorial Institute--Columbus Laboratories

Abstract: The report examines physical coal cleaning as a control technique for sulfur oxides emissions. It includes an analysis of the availability of low-sulfur coal and of coal cleanable to compliance levels for alternate New Source Performance Standards (NSPS).

EPA-600/7-78-038, NTIS-PB280-759/AS

Title: A Washability and Analytical Evaluation of Potential Pollution from Trace Elements in Coal
Author(s): J. A. Cavallaro, G. A. Gibbon, A. W. Deurbrouck
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: David A. Kirchgessner No. Pages: 37
Performing Organization: U. S. Department of Energy

Abstract: The report gives results of a washability study showing the trace element contents of various specific gravity fractions for 10 coal samples collected from 4 coal producing regions of the U.S.

EPA-600/7-78-068, NTIS-PB287-521/AS

Title: Combustion of Hydrothermally Treated Coals
Author(s): E. P. Stambaugh, R. D. Giammar, E. L. Merryman, J. S. McNulty, K. C. Sekhar, T. J. Thomas, H. M. Grotta, A. Levy, J. H. Oxley
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James D. Kilgroe No. Pages: 150
Performing Organization: Battelle Memorial Institute--Columbus Laboratories

Abstract: The report gives results of an evaluation of: (1) the relationship of the combustion characteristics of hydrothermally treated coals to environmental emissions, boiler design, and interchangeability of solid fuels produced by the Hydrothermal Coal Process with raw coals currently being used as the source of energy; and (2) the conversion of solubilized coal to terephthalic acid.

EPA-600/7-78-073, NTIS-PB282-949/AS

Title: Proceedings of the Engineering Foundation Conference on Clean Combustion of Coal
Author(s): Victor S. Engleman
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: G. B. Martin No. Pages: 338
Performing Organization: Science Applications, Inc.

Abstract: The proceedings document the 27 presentations made during the Engineering Foundation Conference on Clean Combustion of Coal, at Rindge, NH August 1-5, 1977 and dealt with the technical, economic, environmental, and policy aspects of clean combustion of coal.

EPA-600/7-78-124, NTIS-PB285-251

Title: An Engineering/Economic Analysis of Coal Preparation Plant Operation and Cost
Author(s): Hoffman-Muntner
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D. C.
Project Officer: R. Laska No. Pages: 297
Performing Organization: Hoffman-Muntner Corporation, Silver Spring, MD

Abstract: The purpose of this study was to identify the costs associated with the various types and levels of physical coal preparation processes currently available.

EPA-600/7-78-150, NTIS-PB287-091/AS

Title: Assessment of Coal Cleaning Technology: First Annual Report
Author(s): Lee C. McCandless, Robert B. Shaver
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James D. Kilgroe No. Pages: 153
Performing Organization: Versar, Inc.

Abstract: The report gives results to date of a continuing assessment of coal cleaning technology.

EPA-600/7-78-173a, NTIS-PB289-493

Title: Assessment of Coal Cleaning Technology: An Evaluation of Chemical Coal Cleaning Processes
Author(s): G. Y. Cantes, I. F. Frankel, L. C. McCandless
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James D. Kilgroe No. Pages: 140
Performing Organization: Versar, Inc.

Abstract: The report assembles and assesses technical and economic information on chemical coal cleaning processes. It was found that chemical coal cleaning processes can remove up to 99% of the pyritic sulfur and 40% of the organic sulfur, resulting in total sulfur removals of 53% to 77%.

EPA-600/2-77-080, NTIS-PB270-111/AS

Title: Pilot Plant Design for Chemical Desulfurization of Coal
Author(s): L. J. Van Nice, M. J. Santy
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Lewis D. Tamny No. Pages: 100
Performing Organization: TRW Systems Group

Abstract: The report gives results of a program for design and operational planning of facilities for testing the Meyers Process for chemical removal of pyritic sulfur from coal.

EPA-600/2-77-206, NTIS-

Title: Pilot Plant Study of Conversion of Coal to Low Sulfur Fuel
Author(s): Donald K. Fleming, Robert D. Smith
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Lewis D. Tamny No. Pages: 140
Performing Organization: Institute of Gas Technology

Abstract: The report gives results of a program to develop, on bench and pilot scales, operating conditions for the key step in the IGT process to desulfurize coal by thermal and chemical treatment.

EPA-600/7-77-130, NTIS-PB288-223

Title: EPA Program Conference Report - Coal Cleaning - An Option for Increased Coal Utilization
Author(s): R. E. Balzhiser, L. Hoffman, H. Loesch, J. H. Oxley, D. F. Spencer, A. W. Deurbrouck, G. A. Issaacs, J. F. McConnell, J. Randolph, E. W. Ungar, S. J. Gage, J. D. Kilgroe, J. Mullen, G. R. Smithson, Jr.
Sponsoring Agency: U. S. Environmental Protection Agency, Washington, D. C.
Project Officer: William N. McCarthy, Jr., Kenneth E. Cochran
Performing Organization: U. S. Environmental Protection Agency, Battelle Columbus Laboratories

Abstract: This publication is the proceedings from the May 24-25, 1977, coal cleaning conference held in Arlington, Virginia. The conference focused on the present status and future possibilities of coal cleaning technology, with emphasis on regulatory, institutional, and economic factors.

EPA-600/2-76-091, NTIS-PB252-965/AS

Title: Sulfur Reduction Potential of U.S. Coals: A Revised Report of Investigations
Author(s): J. A. Cavallaro, M. T. Johnston, A. W. Deurbrouck
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James D. Kilgroe No. Pages: 340
Performing Organization: U.S. Department of the Interior, Bureau of Mines

Abstract: The report gives results of a washability study of 455 raw coal channel samples with special emphasis on sulfur (S) reduction. Complete washability data are presented for each sample processed.

EPA-600/2-76-138, NTIS-PB262-716/AS

Title: Coal Preparation Environmental Engineering Manual
Author(s): David C. Nunenkamp
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Mark J. Stutsman   No. Pages: 600
Performing Organization: J. J. Davis Associates

Abstract: The manual provides an introduction to physical coal cleaning to individuals outside of the coal preparation industry. Specifically, the manual covers the general nature and characteristics of U.S. coals, provides an overview of the coal preparation plant, discusses the major equipment and processes currently in use in coal preparation, identifies the primary waste streams found during the coal cleaning operation, discusses the techniques of control currently applied to those waste streams, and describes the contaminant removal potential of coal.

Synthetic Fuels

This program includes the characterization of effluents and emissions, assessment or related environmental impacts, and development and evaluation of necessary pollution control technology for synthetic fuels generated from coal, biomass, and oil shale. The results of this effort are used as input in the Agency's standard setting process.

EPA-600/7-78-007, NTIS-PB281-274

Title: Recommended Health and Safety Guidelines for Coal Gasification Pilot Plants
Author(s):
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: R. Laska No. Pages: 247
Performing Organization: National Institute for Occupational Safety and Health

Abstract: These guidelines are deemed appropriate for the pilot plant stage of development of advanced coal gasification technology. They are based on pilot plant experience thus far in the United States, and on known hazards and control procedures in analogous industries.

EPA-600/7-78-019, NTIS-PB278-333/AS

Title: Environmental Assessment of Coal Liquefaction: Annual Report
Author(s): Ken T. Budden, Werner H. Zieger
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 200
Performing Organization: Hittman Associates, Inc.

Abstract: The report summarizes results of a study of the environmental aspects of 14 of the most prominent coal liquefaction systems, in terms of background, process description, major operations, input and output streams, status, and schedule of system development.

EPA-600/7-78-020, NTIS-PB284-480

Title: EPA Program Status Report: Oil Shale
Author(s): L. Eckstein
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: R. Laska
Performing Organization: Cameron Engineers, Inc.

Abstract: This report provides the reader with an overview of current oil shale research and development (R&D) efforts being performed by EPA, or being funded by EPA monies passed-through to other Federal agencies under the Interagency Energy/Environment R&D Program.

EPA-600/7-78-025, NTIS-PB278-175/AS

Title: Environmental Assessment of High-Btu Gasification: Annual Report
Author(s): M. Ghassemi, C. Murray
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 90
Performing Organization: TRW, Inc.

Abstract: The report gives results of initial efforts of a 3-year program, initiated May 3, 1977, with the dual objectives of assessing environmental impacts associated with technologies for converting coal to high-Btu gaseous fuel and to identify control technologies required to reduce or eliminate adverse environmental impacts associated with commercial operation.

EPA-600/7-78-061, NTIS-PB279-641/AS

Title: Low- and Medium-Btu Gasification Systems: Technology Overview
Author(s): Paul W. Spaite, Gordon C. Page
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 100
Performing Organization: Paul W. Spaite Company, Radian Corporation

Abstract: The report gives an overview of low- and medium-Btu gasification systems. It describes systems or combinations of processes which are likely to be used for production of low- and medium-Btu gas from coal.

EPA-600/7-78-063, NTIS-PB282-429

Title: Environmental Aspects of Fuel Conversion Technology, III (September 1977, Hollywood, Florida)
Author(s): Franklin A. Ayer, Martin F. Massoglia
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 550
Performing Organization: Research Triangle Institute

Abstract: The report covers EPA's third symposium on the environmental aspects of fuel conversion technology. Its main objective was to review and discuss environmentally related information in the field of fuel conversion technology.

EPA-600/7-78-088, NTIS-PB284-175/AS

Title: Fuel Gas Environmental Impact: Final Report
Author(s): F. L. Robson, W. A. Blecher, V. B. May
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Thomas W. Petrie No. Pages: 300
Performing Organization: United Technologies Research Center

Abstract: The report gives results of continued investigation and further definition of the potential environmental and economic benefits of integrated coal gasification/gas cleanup/combined gas and steam cycle power plants.

EPA-600/7-78-091, NTIS-PB283-028/AS

Title: Standards of Practice Manual for the Solvent Refined Coal Liquefaction Process
Author(s): P. J. Rogoshewski, P. A. Koester, C. S. Koralek, P. S. Wetzel, K. J. Shields
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 375
Performing Organization: Hittman Associates, Inc.

Abstract: The manual gives an integrated multimedia assessment of control/disposal options, emissions, and environmental requirements associated with a hypothetical 50,000 bbl/day Solvent Refined Coal (SRC) facility producing gaseous and liquid fuels.

EPA-600/7-78-134, NTIS-PB286-659

Title: Guidelines for Preparing Environmental Test Plans for Coal Gasification Plants
Author(s): G. C. Page, W. E. Corbett, W. C. Thomas
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 200
Performing Organization: Radian Corporation

Abstract: The report outlines a philosophy and strategy for preparing environmental assessment sampling and analysis (test) plans. Specific sampling and analytical methods are presented, with numerous references cited for more detailed information.

EPA-600/7-78-171, NTIS-PB287-916/AS

Title: Pollutants from Synthetic Fuels Production: Facility Construction and Preliminary Tests
Author(s): J. G. Cleland, F. O. Mixon, D. G. Nichols, C. M. Sparacino, D. E. Wagoner
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Thomas W. Petrie No. Pages: 130
Performing Organization: Research Triangle Institute

Abstract: The report describes the facility construction and gives results of preliminary tests for a project that seeks a fundamental understanding of the facts and conditions that cause the production of environmental pollutants in synthetic fuels processes.

EPA-600/7-78-184a, NTIS-PB287-799/AS

Title: Environmental Assessment Data Base for Coal Liquefaction Technology: Volume I. Systems for 14 Liquefaction Processes
Author(s): Craig S. Koralek, Subhash S. Patel
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 202
Performing Organization: Hittman Associates, Inc.

Abstract: The two-volume report, prepared as part of an overall environmental assessment (EA) program for the technology involved in the conversion of coal to clean liquid fuels, and the Standards of Practice Manual for the Solvent Refined Coal Liquefaction Process represent the current data base for the EA of coal liquefaction technology. This volume summarizes pertinent information about 14 prominent coal liquefaction systems now being developed.

EPA-600/7-78-184b, NTIS-PB287-800/AS

Title: Environmental Assessment Data Base for Coal Liquefaction Technology: Volume II. Synthoil, H-Coal, and Exxon Donor Solvent Processes
Author(s): C. Leon Parker, Dewey I. Dykstra
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 480
Performing Organization: Hittman Associates, Inc.

Abstract: The two-volume report, prepared as part of an overall environmental assessment (EA) program for the technology involved in the conversion of coal to clean liquid fuels, and the Standards of Practice Manual for the Solvent Refined Coal Liquefaction Process represent the current data base for the EA of coal liquefaction technology. This volume is an environmental characterization of three selected coal liquefaction systems: Synthoil, H-Coal, and Exxon Donor Solvent.

EPA-600/7-78-185, NTIS-PB287-179/AS

Title: Analysis for Radionuclides in SRC and Coal Combustion Samples
Author(s): Pamela A. Koester, Warren H. Zieger
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes
No. Pages: 33
Performing Organization: Hittman Associates, Inc.

Abstract: The report deals with the determination of the levels of uranium, thorium, and their daughter products in coal, Solvent Refined Coal (SRC), coal flyash, and SRC flyash samples.

EPA-600/7-78-186a, NTIS-PB288-602

Title: Environmental Assessment Data Base for High-Btu Gasification Technology: Volume I. Technical Discussion
Author(s): M. Ghassemi, K. Crawford, S. Quinlivan
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes
No. Pages: 169
Performing Organization: TRW Environmental Engineering Division

Abstract: The report is part of a comprehensive EPA program for the environmental assessment of high-Btu gasification technology. It summarizes and analyzes the existing data base for the EA of technology and identifies limitations of available data. Volume I summarizes and analyzes the data base.

EPA-600/7-78-186b, NTIS-PB288-603

Title: Environmental Assessment Data Base for High-Btu Gasification Technology: Volume II. Appendices A, B, and C
Author(s): M. Ghassemi, K. Crawford, S. Quinlivan
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes
No. Pages: 415
Performing Organization: TRW Environmental Engineering Division

Abstract: The report is part of a comprehensive EPA program for the environmental assessment of high-Btu gasification technology. It summarizes and analyzes the existing data base for the EA of technology and identifies limitations of available data. Volume II contains data sheets on gasification, gas purification, and gas upgrading.

EPA-600/7-78-186c, NTIS-PB288-604

Title: Environmental Assessment Data Base for High-Btu Gasification Technology: Volume III. Appendices D, E, and F
Author(s): M. Ghassemi, K. Crawford, S. Quinlivan
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 340
Performing Organization: TRW Environmental Engineering Division

Abstract: The report is part of a comprehensive EPA program for the environmental assessment of high-Btu gasification technology. It summarizes and analyzes the existing data base for the EA of technology and identifies limitations of available data. Volume III contains data sheets on air and water pollution control and on solid waste management.

EPA-600/7-78-190, NTIS-PB288-630

Title: Applicability of Petroleum Refinery Control Technologies to Coal Conversion
Author(s): M. Ghassemi, D. Strehler, K. Crawford, S. Quinlivan
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 124
Performing Organization: TRW, Inc.

Abstract: The report gives results of an evaluation of the applicability of refinery control technologies to coal conversion. It is part of a comprehensive program for the environmental assessment of high-Btu gasification technology.

EPA-600/7-78-197a, NTIS-PB288-313/AS

Title: Water-Related Environmental Effects in Fuel Conversion: Volume I. Summary
Author(s): Harris Gold, David J. Goldstein
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Chester A. Vogel No. Pages: 253
Performing Organization: Water Purification Associates

Abstract: The report gives results of an examination of water-related effects that can be expected from siting conversion plants in the major U.S. coal and oil shale bearing regions. Ninety plant-site combinations were studied: 48 in the central and eastern U.S. and 42 in the western.

EPA-600/7-78-197b, NTIS-PB288-874

Title: Water-Related Environmental Effects in Fuel Conversion: Volume II. Appendices
Author(s): Harris Gold, David J. Goldstein
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Chester A. Vogel
No. Pages: 666
Performing Organization: Water Purification Associates

Abstract: The report gives results of an examination of water-related effects that can be expected from siting converstion plants in the major U.S. coal and oil shale bearing regions. Ninety plant-site combinations were studied: 48 in the central and eastern U.S. and 42 in the western.

EPA-600/7-78-204, NTIS-PB289-775/AS

Title: Preliminary Environmental Assessment of Biomass Conversion to Synthetic Fuels
Author(s): S. T. DiNovo, W. E. Ballantyne, L. M. Curran, W. C. Baytos, K. M. Duke, B. W. Cornaby, M. C. Matthews, R. A. Ewing, B. W. Vigon
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer:
No. Pages: 366
Performing Organization: Battelle Columbus Laboratories

Abstract: A preliminary evaluation of biomass production and conversion technologies, and their associated environmental consequences. Five categories of biomass production were considered in detail.

EPA-600/7-78-232, NTIS-

Title: Source Emission Tests at the Baltimore Demonstration Pyrolysis Facility
Author(s): John L. Haslbeck, Billy C. McCoy
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: Walter W. Liberick Jr.
No. Pages: 86
Performing Organization: TRW

Abstract: TRW was retained by EPA/IERL Cincinnati in May of 1976 to conduct source emission tests at a solid waste treatment plant in Baltimore, Maryland. The test program was designed to measure the following flue gas parameters; particulate; SO_2/SO_3; NO_x; HCl:HF; total hydrocarbons; hydrocarbon compounds exceeding 1% of the total hydrocarbon value, but not more than 20; and trace metals.

EPA-600/2-77-147, NTIS-

Title: Synthetic Fuel Production From Solid Wastes
Author(s): Roy C. Feber, Michael J. Antal
Sponsoring Agency: U.S. Environmental Research Laboratory, Cincinnati, OH
Project Officer: Albert J. Klee No. Pages: 84
Performing Organization: Los Alamos Scientific Laboratory, The University of California

Abstract: The work described in this report has two objectives: first, to evaluate potential catalysts for the commercial practice of the gasification of chars produced by the pyrolysis of municipal or industrial wastes; second, to determine the potential for synthetic fuel production from solid wastes produced in this country, and to explore the feasibility of providing the heat required for the gasification reactions by coupling a chemical reactor to a solar collector.

EPA-600/7-77-037, NTIS-PB268-062

Title: Water Requirements to: Steam-Electric Power Generation and Synthetic Fuel Plants in the Western United States
Author(s): H. Gold, D. J. Goldstein, R. F. Probstein, J. S. Shen, D. Yung
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: S. E. Plotkin No. Pages: 275
Performing Organization: Water Purification Associates

Abstract: The study describes the procedures for the detailed determination of the water consumed for mining and processing coal and oil shale, and for determining the residuals generated. The processes considered are Lurgi, Synthane, and Synthoil for coal conversion, TOSCO II for shale conversion, coal-fired steam electric power generation and slurry pipeline.

EPA-600/7-77-045, NTIS-PB268-576/AS

Title: In-Situ Coal Gasification: Status of Technology and Environmental Impact
Author(s): Nancy P. Phillips, Charles A. Muela
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 200
Performing Organization: Radian Corporation

Abstract: The report gives results of a literature review and personal contacts to ascertain what is being done in in-situ coal gasification and to collect existing environmental data. The report presents a general description of the chemistry, technology, and technological problems, along with detailed descriptions of the technical objectives, approaches, and results of ongoing projects.

EPA-600/7-77-057, NTIS-PB269-557/AS

Title: Evaluation of Background Data Relating to New Source Performance Standards for Lurgi Gasification
Author(s): J. W. Sinor
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 230
Performing Organization: Cameron Engineers, Inc.

Abstract: The report contains information on expected emissions from a large coal gasification complex based on Lurgi technology. Use of best available control technology was assumed and two different schemes for sulfur removal were examined.

EPA-600/7-77-065, NTIS-PB269-568/AS

Title: Water Conservation and Pollution Control in Coal Conversion Processes
Author(s): David J. Goldstein, David Yung
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 151
Performing Organization: Water Purification Associates

Abstract: The report gives results of a study to determine water consumption and environmental impacts of coal conversion processes in western states.

EPA-600/7-77-102, NTIS-PB284-336

Title: EPA Program Status Report: Synthetic Fuels from Coal (Including Process Overview with Emphasis on Environmental Considerations)
Author(s): Morris Altschuler, Linda Eckstein, Charles O.Hook, Donald E. Roe, Joseph Zalkind
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: Morris Altschuler, William N. McCarthy, Jr.
Performing Organization: Cameron Engineers, Inc.

Abstract: The status of EPA's Synthetic Fuels from Coal Program as of July 1977 is presented. Processes with emphasis on environmental considerations are also described.

EPA-600/7-77-125a, NTIS-PB274-844/AS

Title: Environmental Assessment Data Base for Low/Medium-Btu Gasification Technology: Volume I. Technical Discussion
Author(s): E. C. Cavanaugh, W. E. Corbett, G. C. Page
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes
No. Pages: 160
Performing Organization: Radian Corporation

Abstract: The report represents the current data base for the environmental assessment of low- and medium-Btu gasification technology. Purpose of the report is to determine: Processes that can be used to produce low/medium-Btu gas from coal, uses of the product gas, multimedia discharge streams generated by the processes, and the technology required to control the discharge streams.

EPA-600/7-77-125b, NTIS-PB274-843/AS

Title: Environmental Assessment Data Base for Low/Medium-Btu Gasification Technology: Volume II. Appendices A-F
Author(s): E. C. Cavanaugh, W. E. Corbett, G. C. Page
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes
No. Pages: 350
Performing Organization: Radian Corporation

Abstract: The report represents the current data base for the environmental assessment of low- and medium-Btu gasification technology.

EPA-600/7-77-141, NTIS-PB276-608/AS

Title: Analyses of Grab Samples from Fixed-Bed Coal Gasification Processes
Author(s): Karl J. Bombaugh
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes
No. Pages: 80
Performing Organization: Radian Corporation

Abstract: The report gives results of an analytical screening of selected effluent samples from operating coal gasification units. The work was done to aid in planning for future more comprehensive environmental test programs which will be conducted at gasification units both in the U.S. and aboard.

EPA-600/7-77-142, NTIS-PB276-580/AS

Title: Environmental Assessment of Low/Medium-Btu Gasification: Annual Report
Author(s): E. C. Cavanaugh, W. C. Thomas
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 40
Performing Organization: Radian Corporation

Abstract: The report summarizes completed and on-going work performed by Radian Corporation for the EPA in the area of environmental assessment of low- and medium-Btu gasification of coal and its utilization.

EPA-600/2-76-085, NTIS-

Title: Gasification/Combined-Cycle System for Electric Power Generation
Author(s): J. Bruce Truett
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: Gary J. Foley
Performing Organization: MITRE Corporation

Abstract: This report describes a type of gasification/combined cycle system being considered for construction by a consortium of Louisiana cities that own electrical utility systems. The 115 KW system is expected to employ the Texaco Synthesis Gas Generation Process (TSGGP) to produce a fuel gas by partial oxidation of a hydrocarbon feedstock.

EPA-600/2-76-093b, NTIS-PB254-166/AS

Title: Field Test Sampling/Analytical Strategies and Implementation Cost Estimates: Coal Gasification and Flue Gas Desulfurization
Author(s): J. W. Hamersma, S. L. Reynolds
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. M. Statnick No. Pages: 105
Performing Organization: TRW Systems Group

Abstract: The report gives results of a determination of sampling and analysis implementation costs for two energy related process technologies: wet limestone scrubbing of flue gas a Lurgi coal gasification system.

EPA-600/2-76-258, NTIS-PB270-913/AS

Title: Fate of Trace and Minor Constituents of Coal During Gasification
Author(s): A. Attari, J. Pau, M. Mensinger
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. J. Rhodes No. Pages: 50
Performing Organization: Institute of Gas Technology

Abstract: The report gives results of a study of the fate of selected minor and trace elements of Montana lignite and Illinois No. 6 bituminous coals during development of the HYGAS process.

EPA-600/2-76-259, NTIS-PB261-916/AS

Title: Initial Environmental Test Plan for Source Assessment of Coal Gasification
Author(s): A. Attari, M. Mensinger, J. Pau
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. J. Rhodes No. Pages: 150
Performing Organization: Institute of Gas Technology

Abstract: The report describes an initial source assessment environmental test plan, developed to investigate the fate of various constituents during coal gasification.

EPA-600/7-76-035, NTIS-PB266-266

Title: Production and Processing of U.S. Tar Sands, An Environmental Assessment
Author(s): N. A. Frazier, D. W. Hissong, W. E. Ballantyne, E. J. Mezey
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 75
Performing Organization: Battelle

Abstract: Reported here are the results of a preliminary study to assess the potential primary environmental impacts of production and processing of U.S. tar sands bitumen. Currently there are two basic ways for producing tar sands--mining and in-situ. Producing tar sands by mining methods would be similar to those of mining coal. Currently there is no in-situ production technology but it is believed that environmental impacts would be similar to those of conventional oil field production.

Fuel Extraction

This program deals with environmental quality problems associated with the technologies and processes for obtaining fuels, oil or natural gas extraction, oil shale development, and coal mining. The major purposes of the research program are: (1) to assess the existing and potential adverse environmental impacts from active and planned oil and gas production, storage, and transportation; (2) to develop methods, technology, and equipment to prevent, control, and abate environmental pollutants from these operations including spill clean-up; and (3) to document the technical/operational feasibility and cost effectiveness of environmental control options.

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EPA-600/7-79-034, NTIS-

Title: Evaluation of the Environmental Effects of Western Surface Coal Mining Volume II - Mine Inventory
Author(s): William Kelly
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer:
No. Pages: 205
Performing Organization: Mathematica, Inc.

Abstract: This report is a companion volume to the report entitled, "Evaluation of the Environmental Effects of Western Surface Coal Mining." It contains a tabular Summary of general information, and is specifically designed to evaluate the surface mining methods presently employed in the mining of western coal in arid and semi-arid regions, and to evaluate the effects these methods have on the environment.

EPA-600/7-79-035, NTIS-

Title: Tioga River Mine Drainage Abatement Project
Author(s): A. F. Miorin, R. S. Klingensmith, R. E. Heizer and J. R. Saliunas
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer:
No. Pages: 97
Performing Organization: Gannett Fleming Corddry and Carpenter, Inc.

Abstract: The project demonstrated effective techniques for mine drainage abatement, reduced a specific mine drainage problem, and restored portions of a strip mined area to their approximate original surface grades.

EPA-600/2-78-003, NTIS-PB279-150

Title: Estimating Environmental Damages from Surface Mining of Coal in Appalachia: A Case Study
Author(s): Alan Randall, Orlen Grunewald, Angelos Pagoulatos, Richard Ausness, Sue Johnson
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: John F. Martin
No. Pages: 141
Performing Organization: The University of Kentucky

Abstract: The major objectives of this research were to develop a methodology for valuation, in econominc terms, of the environmental damage from surface mining; to apply that methodology in an empirical case study of the environmental damage associated with surface mining of coal in Appalachia; and to estimate, in economic terms, the value of the environmental damage from surface mining of coal in the case study region, under four alternative regulatory frameworks.

EPA-600/7-79-067a, NTIS-PB292-385

Title: EPA Industrial Boiler FGD Survey: Fourth Quarter 1978
Author(s): J. Tuttle, A. Patkar, D. Welch, M. Hessling, and M. Eckstein
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. Michael McAdams No. Pages: 230
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report gives detailed technical information concerning application of flue gas desulfurization (FGD) systems to industrial boilers. Design and operation data are presented for 172 FGD control systems (132 of them operational) designed to control SO_2 emissions from 206 industrial boilers at 61 plants.

EPA-600/7-79-092, NTIS-

Title: Industry Briefing on EPA Lime/Limestone Wet Scrubbing Test Programs (August 1978)
Author(s): John E. Williams
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: John E. Williams No. Pages: 176
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The proceedings document presentations made during the August 29, 1978 industry briefing conference which dealt with the status of EPA/IERL-RTP's flue gas desulfurization (FGD) research, development, and application programs.

EPA-600/2-78-063, NTIS-

Title: Demonstration/Evaluation of the Cat-Ox Flue Gas Desulfurization System--Final Report
Author(s): R. Bee, R. Reale, A. Wallo
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Charles J. Chatlynne No. Pages: 431
Performing Organization: The Mitre Corporation/Metrek Division

Abstract: The report gives a comprehensive summary of the experience gained and the problems encountered during the Cat-Ox demonstration program. The report outlines the process design and construction, as well as operating experience and problems.

EPA-600/2-78-004K, NTIS-PB284-297

Title: Source Assessment: Coal Storage Piles
Author(s): T. R. Blackwood, R. A. Wachter
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: John F. Martin
No. Pages: 98
Performing Organization: Monsanto Research Corporation

Abstract: This report describes a study of atmospheric emissions from coal storage piles. Fugitive emissions of dust and gases are emitted from coal storage piles. The amount of coal stored is increasing at the rate of 3.8% per year and this will result in a 25% increase in emissions in 1978 compared to 1972.

EPA-600/2-78-004m, NTIS-PB285-420

Title: Source Assessment: Water Pollutants From Coal Storage Areas
Author(s): R. A. Wachter, T. R. Blackwood
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: John F. Martin
No. Pages: 122
Performing Organization: Monsanto Research Corporation

Abstract: This report describes a study of water pollution levels that result from coal stockpiles maintained outdoors.

EPA-600/2-78-004v, NTIS-PB288-210

Title: Source Assessment: Coal Refuse Piles, Abandoned Mines and Outcrops, State of the Art
Author(s): P. K. Chalekode, T. R. Blackwood
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: John F. Martin
No. Pages: 51
Performing Organization: Monsanto Research Corporation

Abstract: This report describes a study of atmospheric emissions from coal refuse piles, abandoned mines, and outcrops. The potential environmental effect of the source was evaluated using source severity (defined as the ratio of the maximum time-averaged ground level concentration of an emission to a hazard factor).

EPA-600/2-78-004x, NTIS-PB288-497

Title: Source Assessment: Open Mining of Coal State of the Art
Author(s): S. J. Rusek, S. R. Archer, R. A. Wachter, T. R. Blackwood
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: John F. Martin No. Pages: 87
Performing Organization: Monsanto Research Corporation

Abstract: This report describes a study of atmospheric emissions from the open mining of coal. The potential environmental effect of this emission source was evaluated using source severity, defined as the ratio of the maximum ground-level concentration of a pollutant at a representative plant boundary to a hazard factor.

EPA-600/2-78-068, NTIS-PB281-092

Title: Acid Mine Drainage and Subsidence: Effects of Increased Coal Utilization
Author(s): Ronald D. Hill, Edward R. Bates
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: E. R. Bates No. Pages: 38
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The increases above 1975 levels for acid mine drainage and subsidence for the years 1985 and 2000 based on projections of current mining trends and the National Energy Plan are presented.

EPA-600/7-78-003, NTIS-PB277-087/AS

Title: Environmental Overview of Texas Lignite Development
Author(s): D. Harner, K. Holland, S. James, J. Lacy, J. Norton
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Roger P. Hansen No. Pages: 242
Performing Organization: Radian Corporation

Abstract: The report gives results of an investigation of possible effects of the development of Texas lignite, forecast to the year 2000 and based on a 10-to 20-fold increase of lignite utilization over 1976 levels.

EPA-600/7-78-006, NTIS-PB280-180

Title: Site Selection and Design for Minimizing Pollution from Underground Coal Mining Operations
Author(s): Reynold Q. Shorts, Eric Sterett, Thomas A. Simpson
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: S. J. Hubbard
No. Pages: 108
Performing Organization: The University of Alabama

Abstract: The objectives of this study were to determine how best to select a layout and mining system and also to develop and operate an underground coal mine while at the same time minimizing pollution of the environment.

EPA-600/7-78-021, NTIS-PB280-308

Title: Vegetative Stabilization of Spent Oil Shales, Vegetation Moisture Salinity & Runoff 1973-1976
Author(s): H. P. Harbert, III, W. A. Berg
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: E. F. Harris
No. Pages: 183
Performing Organization: Department of Agronomy, Colorado State University

Abstract: The objectives of these studies were to investigate surface stability of and salt movement in spent shales and spent shales covered with soil after vegetation has been established by intensive treatment and then left under natural precipitation conditions.

EPA-600/7-78-028, NTIS-LA-6835-PR

Title: Trace Element Characterization of Coal Wastes--First Annual Report
Author(s): Eugene M. Wewerka, Joel M. Williams
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Charles Grua, David A. Kirchgessner
No. Pages: 55
Performing Organization: Los Alamos Scientific Laboratory, University of California

Abstract: The report gives the status of a program to assess the potential for environmental pollution by trace elements discharged from coal storage piles and coal cleaning wastes.

EPA-600/7-78-028a, NTIS-PB284-450

Title: Trace Element Characterization of Coal Wastes--Second Annual Progress Report
Author(s): E. M. Wewerka, J. M. Williams, N. E. Vanderborgh, A. W. Harmon, P. L. Wagner, J. D. Olsen
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: David A. Kirchgessner No. Pages: 81
Performing Organization: Los Alamos Scientific Laboratory, University of California

Abstract: The report describes the results to date of research to assess the potential pollution by trace elements discharged from coal storage piles and coal cleaning wastes.

EPA-600/7-78-060, NTIS-PB280-232

Title: Performance Testing of Oil Mop Zero Relative Velocity Oil Skimmer
Author(s): Michael K. Breslin
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: J. S. Farlow No. Pages: 29
Performing Organization: Mason & Hanger-Silas Mason Co., Inc.

Abstract: This research test program was initiated by the U.S. Environmental Protection Agency (EPA) and the U.S. Coast Guard (USCG) to determine the ability of the Oil Mop Inc. (OMI) zero relative velocity (ZRV) oil skimmer to recover oil from a water surface under various conditions.

EPA-600/7-78-067, NTIS-PB284-013

Title: Effects of the Disposal of Coal Waste and Ashes in Open Pits
Author(s): Jacek Libicki
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 297
Performing Organization: Central Research and Design Institute for Open-pit Mining, Poltegor

Abstract: The objective of this study was to determine the extent of groundwater quality deterioration when coal mine solid waste (refuse) and power plant ashes were disposed of into open pits.

EPA-600/7-78-080a, NTIS-PB285-122

Title: Testing Program for Mining Coal in an Oxygen Free Atmosphere - Volume 1
Author(s): R. C. Taliaferro and Don Motz
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: D. J. O'Bryan
No. Pages: 101
Performing Organization: Island Creek Coal Co., Cyrus Wm. Rice Division, NUS Corporation

Abstract: A systems evaluation was undertaken to demonstrate the ability of miners wearing life support systems to operate conventional mining equipment and to mine coal at a test section in an active ventilated mine.

EPA-600/7-78-080b, NTIS-PB282-752

Title: Testing Program for Mining Coal in an Oxygen Free Atmosphere - Volume II - Appendices
Author(s): R. C. Taliaferro, Don Motz
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: D. J. O'Bryan
No. Pages: 241
Performing Organization: Island Creek Coal Co., Cyrus Wm. Rice Division, NUS Corporation

Abstract: A systems evaluation was undertaken to demonstrate the ability of miners wearing life support systems to operate conventional mining equipment and to mine coal at a test section in an active ventilated mine. This volume contains the Appendices only.

EPA-600/7-78-082, NTIS-

Title: Performance Testing of Three Offshore Skimming Devices
Author(s): H. W. Lichte, M. K. Breslin
Sponsoring Agency: U. S. Environmental Protection Agency, Cincinnati, OH
Project Officer: J. S. Farlow
No. Pages: 89
Performing Organization: Mason & Hanger-Silas Mason Co., Inc.

Abstract: The CYCLONET 100, MARCO Class V OIL SKIMMER, and U. S. Coast Guard SKIMMING BARRIER (CGSB) were evaluated in terms of their throughput efficiency, recovery efficiency, and oil recovery rate.

EPA-600/7-78-109, NTIS-PB285-211

Title: Response of a Salt Marsh to Oil Spill and Cleanup: Biotic and Erosional Effects in the Hackensack Meadowlands, New Jersey
Author(s): Phillip C. Dibner
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: L. T. McCarthy, Jr. No. Pages: 62
Performing Organization: URS Company

Abstract: This study addresses the biological and erosional response of portions of the Hackensack Meadowlands estuarine marsh to the Wellen Oil Company number 6 crude oil spill of late May 1976, and the subsequent cleanup operations.

EPA-600/7-78-133, NTIS-PB286-362

Title: Cleanup Efficiency and Biological Effects of a Fuel Oil Spill in Cold Weather: The 1977 *Bouchard No. 65* Oil Spill in Buzzards Bay, Massachusetts
Author(s): Eric Schrier
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: L. T. McCarthy, Jr., No. Pages: 200
Performing Organization: URS Company

Abstract: This study was initiated following the 1977 *Bouchard No. 65* fuel oil spill in Buzzards Bay, Massachusetts. Its major objectives were to evaluate the techniques used to clean up and/or mitigate damage from this spill and make recommendations of feasible alternative methods that may be used in future spills.

EPA-600/7-78-148, NTIS-PB288-406

Title: Microbial Degradation of Petroleum Hydrocarbons
Author(s): D. W. S. Westlake, F. D. Cook, A. M. Jobson
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D. C.
Project Officer: Clinton Hall No. Pages: 80
Performing Organization: University of Alberta

Abstract: The responses to Prudhoe Bay oil of the microbial populations present in water column, beach and sediment samples representative of the diverse marine shoreline environments found in the northern Puget Sound and Juan de Fuca areas were investigated under laboratory conditions.

EPA-600/7-78-149, NTIS-PB286-647

Title: Remote Monitoring of Coal Strip Mine Rehabilitation
Author(s): James E. Anderson, Charles E. Tanner
Sponsoring Agency: Robert S. Kerr Monitoring and Support Laboratory, Las Vegas, NV
Project Officer: G. J. D'Alessio No. Pages: 72
Performing Organization: Lockheed Electronics Company, Inc.

Abstract: This report discusses the accomplishments of the Phase I Operations of the EPA/NASA joint project and also compares the results of manual photointerpretation and automated data analysis conducted during this phase.

EPA-600/7-78-156, NTIS-PB286-996

Title: Overburden Mineralogy as Related to Ground-Water Chemical Changes in Coal Strip Mining
Author(s): Arthur Hounslow, Joan Fitzpatrick
Sponsoring Agency: Robert S. Kerr Environmental Research Laboratory, Ada, OK
Project Officer: B. D. Newport No. Pages: 319
Performing Organization: Colorado School of Mines Research Institute

Abstract: A research program was initiated to define and develop an inclusive, effective, and economical method for predicting potential ground-water quality changes resulting from the strip mining of coal in the Western United States.

EPA-600/7-78-160, NTIS-PB287-071

Title: Oil Pollution Reports, Vol. 5 No. 2 (February 1978 - May 1978)
Author(s): Helmut Ehrenspeck, Elizabeth Sorenson, Jim Cook, Barbara Searles
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 254
Performing Organization: Marine Science Institute, University of California

Abstract: OIL POLLUTION REPORTS (formerly OIL SPILL AND OIL POLLUTION REPORTS) is a quarterly compilation of abstracts of current oil pollution-related literature, research projects, and conferences.

EPA-600/7-78-180, NTIS-PB287-086

Title: USER's Manual for Premining Planning of Eastern Surface Coal Mining, Volume 1: Executive Summary
Author(s): R. V. Ramani, M. L. Clar
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 81
Performing Organization: Department of Mineral Engineering, The Pennsylvania State University

Abstract: This document is the first of a series of six volumes which together comprise a User's Manual for Premining Planning of Surface Coal Mining Operations in the Eastern United States. This first volume is an executive summary which provides first a review of the major considerations addressed in the research project; second, a discussion of the premining planning process; and third, an outline and summary of the contents and use of the other five volumes.

EPA-600/7-78-218, NTIS-PB290-227

Title: Oil Pollution Reports, Vol. 5 No. 3 (June 1978 - September 1978)
Author(s): Helmut Ehrenspeck, Elizabeth Sorenson, Barbara Searles, Katherine Osteryoung
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 308
Performing Organization: Marine Science Institute, University of California

Abstract: OIL POLLUTION REPORTS (formerly OIL SPILL AND OIL POLLUTION REPORTS) is a quarterly compilation of abstracts of current oil pollution related literature, research projects, and conferences.

EPA-600/7-78-219, NTIS-PB291-278

Title: Performance Testing of Selected Sorbent Booms
Author(s): Gary F. Smith
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 35
Performing Organization: Mason & Hanger-Silas Mason Co., Inc.

Abstract: Performance tests on three commercially available sorbent booms were conducted at the U. S. Environmental Protection Agency's Oil and Hazardous Materials Simulated Environmental Test Tank (OHMSETT) test facility.

EPA-600/7-78-220, NTIS-PB291-958

Title: Protection, Cleanup, and Restoration of Salt Marshes Endangered by Oil Spills -- A Procedural Manual
Author(s): D. J. Maiero, R. W. Castle, O. L. Crain
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 164
Performing Organization: URS Company

Abstract: This manual addresses the response of the protection, cleanup, and restoration phases of spilled oil endangering or contaminating tidal marshlands. The manual follows a step by step approach to response actions.

EPA-600/7-78-222, NTIS-PB291-369

Title: Pollution Control Guidelines for Coal Refuse Piles and Slurry Ponds
Author(s): W. A. Wahler and Associates
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 224
Performing Organization: W. A. Wahler and Associates

Abstract: The report compiles information on construction practices applicable to pollution control from coal refuse disposal sites. Water pollution from old, acid-producing refuse piles and erosion of steep refuse banks was found to be a serious concern, as was pollution caused by suspended solids from slurry ponds.

EPA-600/7-77-015, NTIS-PB266-292

Title: Monitoring Environmental Impacts of the Coal and Oil Shale Industries, Research and Development Needs
Author(s): D. C. Jones, W. S. Clark, W. F. Holland, J. C. Lacy, E. D. Sethness
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Las Vegas, NV
Project Officer: R. K. Oser No. Pages: 204
Performing Organization: Radian Corporation

Abstract: Recommendations are presented for monitoring and predictive technology for the coal conversion and oil shale industries. The recommendations are based upon a literature survey of the emissions and potential impacts of these industries. Descriptions of the technologies are included.

EPA-600/7-76-036, NTIS-PB266-413

Title: Assessment of Environmental Aspects of Uranium Mining and Milling
Author(s): A. K. Reed, H. C. Meeks, S. E. Pomeroy, V. Q. Hale
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 59
Performing Organization: Battelle Columbus Laboratories

Abstract: This research program was initiated with the basic objective of making a preliminary assessment of the potential environmental impacts associated with the mining and milling of domestic uranium ores. All forms of pollution except radiation were considered.

EPA-600/7-77-067, NTIS-PB270-080

Title: Paleoenvironment of Coal and Its Relation to Drainage Quality
Author(s): Frank T. Caruccio, John C. Ferm, John Horne, Gwendelyn Geidel, Bruce Baganz
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: T. G. Newport No. Pages: 118
Performing Organization: University of South Carolina

Abstract: The acid production potential of a coal was related to its paleoenvironment (environment of deposition) as interpreted from the overlying strata. This study showed that the pyrite distribution and, more importantly, the water chemistry producing acidic or neutral drainages, were correlative with the paleoenvironment of the coals and associated strata.

EPA-600/7-77-068, NTIS-PB272-244

Title: Onsite Control of Sedimentation Utilizing the Modified Block-Cut Method of Surface Mining
Author(s): C. T. Haan
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: S. J. Hubbard No. Pages: 101
Performing Organization: Watkins and Associates, Inc.

Abstract: The objective of this study was to determine the feasibility of a demonstration project for onsite control of sedimentation utilizing the modified block-cut method of surface mining.

EPA-600/7-77-069, NTIS-PB272-283

Title: A Preliminary Assessment of the Environmental Impacts from Oil Shale Developments
Author(s): K. W. Crawford, C. H. Prien, L. B. Baboolal, C. C. Shih, A. A. Lee
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: T. J. Powers
No. Pages: 186
Performing Organization: TRW, Inc., Denver Research Institute

Abstract: The report is a summary of major oil shale extraction and retorting development activities. The potential impacts on the physical environment which could result from commercial oil shale development are discussed relative to sources, properties, and quantities of wastes.

EPA-600/7-77-080, NTIS-

Title: Offshore Oil and Gas Extraction, An Environmental Review
Author(s): N. A. Frazier, D. L. Maase, R. Clark
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: E. F. Harris
No. Pages: 68
Performing Organization: Battelle

Abstract: Reported are the results of an environmental review of emission sources and emissions associated with U.S. offshore oil and gas exploration, drilling, and production. The purpose of the review was to rank technological problems of controlling these emissions.

EPA-600/7-77-083, NTIS-PB272-373

Title: Long-Term Environmental Effectiveness of Close Down Procedures - Eastern Underground Coal Mines
Author(s): M. F. Bucek, J. L. Emel
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: S. J. Hubbard
No. Pages: 152
Performing Organization: HRB-Singer, Inc.

Abstract: The objective of the research project was to prepare an up-to-date document on deep mine closures that have been or are planned to be implemented in the eastern coal mining regions.

EPA-600/7-77-090, NTIS-PB272-896

Title: Elkins Mine Drainage Pollution Control Demonstration Project
Author(s): Staff, Resource Extraction and Handling Division
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: R. D. Hill No. Pages: 316
Performing Organization: Industrial Environmental Research Laboratory

Abstract: In 1964 several federal agencies in cooperation with the State of West Virginia initiated a project to demonstrate methods to control the pollution from abandoned underground and surface mines in the Roaring Creek-Grassy Run Watersheds near Elkins, West Virginia. The reclamation project was to demonstrate the effectiveness of mine seals, water diversion from underground workings, burial of acid-producing spoils and refuse, surface mine reclamation, and surface mine revegetation.

EPA-600/7-77-124, NTIS-PB276-584

Title: Catawissa Creek Mine Drainage Abatement Project
Author(s): A. F. Miorin, R. S. Klingensmith, F. J. Knight, R. E. Heizer, J. R. Saliunas
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 173
Performing Organization: Gannett Fleming Corddry and Carpenter, Inc.

Abstract: The objective of this study was to determine the feasibility of flooding underground coal mine workings in an isolated basin of coal, thereby restoring or partially restoring the groundwater table in the basin and reducing the production of acid mine drainage.

EPA-600/2-76-064, NTIS-PB252-649/AS

Title: Atmospheric Pollution Potential from Fossil Fuel Resource Extraction, On-Site Processing and Transportation
Author(s): E. C. Cavanaugh, G. M. Clancy, J. D. Colley, P. S. Dzierlenga, V. M. Felix, D. C. Jones, T. P. Nelson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: L. Lorenzi, Jr. No. Pages: 275
Performing Organization: Radian Corporation

Abstract: The report describes the processes and operations employed for the production, on-site processing, and transportation of coal, oil, oil shale, and gas. A review of emission source monitoring methods, as well as a study of possible source control methods, is presented.

EPA-600/2-79-019a, NTIS-

Title: Source Assessment: Residential Combustion of Coal
Author(s): D. G. DeAngelis, R. B. Reznik
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Ronald A. Venezia   No. Pages: 120
Performing Organization: Monsanto Research Corporation

Abstract: The report summarizes the assessment of air emissions from the residential combustion of anthracite, bituminous, and lignite coals, with emphasis on bituminous coals.

EPA-600/7-79-022b, NTIS-

Title: EPA Utility FGD Survey: October-November 1978
Author(s): M. Melia, M. Smith, T. Koger, B. Laseke
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan   No. Pages: 155
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report is an updated supplement to EPA-600/7-78-051a and should be used in conjunction with it. It presents a survey of utility flue gas desulfurization (FGD) systems in the U.S., summarizing information contributed by the utility industry, process suppliers, regulatory agencies, and consulting engineering firms.

EPA-600/7-79-030, NTIS-PB292-709

Title: Kinetics of Sulfur Dioxide Oxidation in Aqueous Solution
Author(s): J. L. Hudson, J. Erwin, N. M. Catipovic
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan   No. Pages: 80
Performing Organization: The University of Illinois

Abstract: The report gives results of a study of the rate of oxidation (low pH catalyzed oxidation and high pH uncatalyzed oxidation) of SO_2 in a 1 liter semi-batch reactor.

Environmental Impact of Conventional and Advanced Energy Systems

Research in this program is designed to assess environmental risks, conduct bench-scale system and/or control technology research, and identify environmentally, socially, and economically acceptable alternatives for modified conventional energy systems, advanced energy supply concepts, and energy conserving techniques. The program, which will assist EPA in selecting policies and in setting environmental standards, comprises comprehensive environmental assessments of energy systems. These integrated technology assessments quantify the cost/risk/benefit tradeoffs of energy systems and pollution control alternatives. A comprehensive assessment of unregulated and regulated residuals from conventional combustion sources is one major project of this program. Other environmental assessments included in this program will examine: Industrial energy conservation, wastes as fuels, solar energy, energy-related solid and waterborne residuals, geothermal energy, waste heat recovery, and advanced energy cycles.

For ease of reference, this program category is divided into four subcategories:

- Integrated Technology Assessment
- Waste Heat/Waste Products
- Conventional Combustion Environmental Assessment
- Conservation and Advanced Systems

Integrated Technology Assessment

The overall objective of the integrated technology assessment (ITA) program is to identify environmentally, socially, and economically acceptable alternatives for meeting national energy objectives, and to assist in the selection of "optimum" policies for the attainment of associated environmental quality goals. This objective will be met by:

- Performing studies to evaluate the cost/risk/benefit tradeoffs of energy production and pollution control alternatives.
- Conducting technology assessments which evaluate alternative energy technologies and approaches for implementing energy development, preventing environmental damage, and securing related benefits.
- Identifying gaps in present research programs and indicating new priority research topics which must be addressed in order to support direct Agency responsibilities.

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EPA-600/7-79-060a, NTIS-

Title: Energy From the West: Energy Resource Development Systems Report - Volume I: Introduction and General Social Controls
Author(s): I. L. White, M. A. Chartock, R. L. Leonard, S. C. Ballard, M. Gilliand, T. A. Hall, E. J. Malecki, E. B. Rappaport, R. W. Rycroft, R. K. Freed, G. D. Miller
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: J. White No. Pages: 156
Performing Organization: The Radian Corporation, University of Oklahoma

Abstract: This report describes the technologies likely to be used for development of coal, oil shale, uranium, oil, natural gas, and geothermal resources in eight western states. The study examines the development of these energy resources in the eight states from the present to the year 2000.

EPA-600/7-79-060b, NTIS-

Title: Energy From the West: Energy Resource Development Systems Report - Volume II: Coal
Author(s): I. L. White, M. A. Chartock, R. L. Leonard, S. C. Ballard, M. Gilliand, T. A. Hall, E. J. Malecki, E. B. Rappaport, R. W. Rycroft, R. K. Freed, G. D. Miller
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: J. White No. Pages: 367
Performing Organization: The Radian Corporation, University of Oklahoma

Abstract: This report describes the technologies likely to be used for development of coal, oil shale, uranium, oil, natural gas, and geothermal resources in eight western states. The study examines the development of these energy resources in the eight states from the present to the year 2000.

EPA-600/7-79-060c, NTIS-

Title: Energy From the West: Energy Resource Development Systems Report - Volume III: Oil Shale
Author(s): I. L. White, M. A. Chartock, R. L. Leonard, S. C. Ballard, M. Gilliand, T. A. Hall, E. J. Malecki, E. B. Rappaport, R. W. Rycroft, R. K. Freed, G. D. Miller
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: J. White No. Pages: 301
Performing Organization: The Radian Corporation, University of Oklahoma

Abstract: This report describes the technologies likely to be used for development of coal, oil shale, uranium, oil, natural gas, and geothermal resources in eight western states. The study examines the development of these energy resources in the eight states from the present to the year 2000.

EPA-600/7-79-060d, NTIS-

Title: Energy From the West: Energy Resource Development Systems Report - Volume IV: Uranium
Author(s): I. L. White, M. A. Chartock, R. L. Leonard, S. C. Ballard, M. Gilliand, T. A. Hall, E. J. Malecki, E. B. Rappaport, R. W. Rycroft, R. K. Freed, G. D. Miller
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: J. White No. Pages: 231
Performing Organization: The Radian Corporation, University of Oklahoma

Abstract: This report describes the technologies likely to be used for development of coal, oil shale, uranium, oil, natural gas, and geothermal resources in eight western states. The study examines the development of these energy resources in the eight states from the present to the year 2000.

EPA-600/7-79-060e, NTIS-

Title: Energy From the West: Energy Resource Development Systems Report - Volume V: Oil and Natural Gas
Author(s): I. L. White, M. A. Chartock, R. L. Leonard, S. C. Ballard, M. Gilliand, T. A. Hall, E. J. Malecki, E. B. Rappaport, R. W. Rycroft, R. K. Freed, G. D. Miller
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: J. White No. Pages: 206
Performing Organization: The Radian Corporation, University of Oklahoma

Abstract: This report describes the technologies likely to be used for development of coal, oil shale, uranium, oil, natural gas, and geothermal resources in eight western states. The study examines the development of these energy resources in the eight states from the present to the year 2000.

EPA-600/7-79-060f, NTIS-

Title: Energy From the West: Energy Resource Development Systems Report - Volume VI: Geothermal
Author(s): I. L. White, M. A. Chartock, R. L. Leonard, S. C. Ballard, M. Gilliand, R. A. Hall, E. J. Malecki, E. B. Rappaport, R. W. Rycroft, R. K. Freed, G. D. Miller
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: J. White No. Pages: 196
Performing Organization: The Radian Corporation, University of Oklahoma

Abstract: This report describes the technologies likely to be used for development of coal, oil shale, uranium, oil, natural gas, and geothermal resources in eight western states. The study examines the development of these energy resources in the eight states from the present to the year 2000.

EPA-600/7-79-082a, NTIS-

Title: Energy From the West: Impact Analysis Report Volume I: Introduction and Summary
Author(s): Irvin L. White
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D. C.
Project Officer: No. Pages: 159
Performing Organization: University of Oklahoma

Abstract: This document reports the results of impact analyses conducted as a part of a three-year technology assessment of the development of six energy resources (coal, geothermal, natural gas, oil, oil shale and uranium) in eight western states during the period 1975-2000. Volume I describes the purpose and conduct of the study and summarizes both site-specific and regional impact analysis results.

EPA-600/7-79-082b, NTIS-

Title: Energy From the West: Impact Analysis Report Volume II: Site-Specific and Regional Impact Analyses
Author(s): Irvin L. White
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D. C.
Project Officer: No. Pages: 932
Performing Organization: University of Oklahoma

Abstract: In Volume II, more detailed analytical results are presented. Six chapters report on the analysis of the likely impacts of deploying typical energy resource development technologies at sites representative of the kinds of conditions likely to be encountered in the eight-state study area. A seventh chapter describes other local impacts which might occur; and a final chapter reports the results of regional impacts.

EPA-600/7-79-083, NTIS-

Title: Energy From the West: Policy Analysis Report
Author(s): Irvin L. White
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: No. Pages: 850
Performing Organization: University of Oklahoma

Abstract: Previously published reports have described the analytical structure and conduct of the study, the technology for developing western energy resources and reported the results of an analysis of the impacts likely to result when western energy resources are developed. This report relates those impacts to the social and political context within which this development is and will be taking place.

EPA-600/7-78-012, NTIS-PB277-771

Title: Work Plan for Completing a Technology Assessment of Western Energy Resource Development
Author(s): Irvin L. White
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: S. Plotkin No. Pages: 56
Performing Organization: Science and Public Policy Program, University of Oklahoma

Abstract: This is a work plan for completing the final phase of a three year technology assessment of the development of six energy resources (coal, geothermal, natural gas, oil, oil shale, and uranium) in eight western states during the period from the present to the year 2000.

EPA-600/7-78-022, NTIS-PB278-274

Title: First Order Estimates of Energy Requirements for Pollution Control
Author(s): James L. Barker, Kenneth Maddox, James D. Westfield, Douglas Wilcock
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: R.M. Laska No. Pages: 77
Performing Organization: Development Sciences, Inc.

Abstract: This report presents estimates of the energy demand attributable to environmental control of pollution from "stationary point sources." This class of pollution source includes powerplants, factories, refineries, municipal waste water treatment plants, etc., but excludes "mobile sources."

EPA-600/7-77-035, NTIS-PB266-218/AS

Title: Heat Pumps: Substitutes for Outmoded Fossil-Fueled Systems
Author(s): E.A. Picklesimer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Lewis D. Tamny No. Pages: 44
Performing Organization: Lockheed Missiles and Space Company, Inc.

Abstract: The report reviews the state-of-the-art relative to development, capacity, and adequacy of the heat pump as a potential replacement for outmoded fossil-fueled heating and cooling systems in the residential and commercial sector. Based on January 1, 1976, fuel prices, the heat pump is about 25% more expensive to operate than comparable fossil-fueled heating systems.

EPA-600/7-77/072a, NTIS-PB271-752

Title: Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume I Summary
Author(s): Irvin L. White
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: S. E. Plotkin No. Pages: 182
Performing Organization: Radian Corporation, University of Oklahoma

Abstract: This is a progress report of a three-year technology assessment of the development of six energy resources (coal, geothermal, natural gas, oil, oil shale, and uranium) in eight western states during the period from the present to the year 2000. Volume I describes the purpose and conduct of the study.

EPA-600/7-77-072b, NTIS-PB271-753

Title: Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume II Detailed Analyses and Supporting Materials
Author(s): Irvin L. White
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: S. E. Plotkin No. Pages: 839
Performing Organization: University of Oklahoma

Abstract: This is a progress report of a three-year technology assessment of the development of six energy resources (coal, geothermal, natural gas, oil, oil shale, and uranium) in eight western states during the period from the present to the year 2000. In Volume II, more detailed analytical results are presented.

EPA-600/7-77-072c, NTIS-PB271-754

Title: Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume III Preliminary Policy Analysis
Author(s): Irvin L. White
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: S. E. Plotkin No. Pages: 191
Performing Organization: University of Oklahoma

Abstract: This is a progress report of a three-year technology assessment of the development of six energy resources (coal, geothermal, natural gas, oil, oil shale, and uranium) in eight western states during the period from the present to the year 2000. The two chapters in Volume III describe the political and institutional context of policymaking for western energy resource development and present a more detailed discussion of selected problems and issues.

EPA-600/7-77-072d, NTIS-PB272-243

Title: Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Appendices
Author(s): Irvin L. White
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: S. E. Plotkin No. Pages: 213
Performing Organization: University of Oklahoma

Abstract: This is a progress report of a three-year technology assessment of the development of six energy resources (coal, geothermal, natural gas, oil, oil shale, and uranium) in eight western states during the period from the present to the year 2000. The fourth volume presents two appendices, on air quality modeling and energy transportation costs.

EPA-600/7-77-101, NTIS-PB273-019

Title: Energy Consumption of Environmental Controls: Fossil Fuel, Steam Electric Generating Industry
Author(s): Brian Murphy, James Mahoney, David Bearg, Gale Hoffnagle, Joel Watson
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.; Office of Environmental Affairs, Department of Commerce, Washington, D.C.
Project Officer: S. E. Plotkin No. Pages: 207
Performing Organization: Environmental Research & Technology, Inc.

Abstract: This report addresses the energy requirements for environmental control in the fossil fuel, steam electric industry. These requirements are computed for a variety of energy policy "scenarios" to demonstrate the impact of altering current environmental regulations or of utilizing alternate strategies for achieving environmental goals.

EPA-600/7-77-120, NTIS-PB291-331

Title: A Region's Energy Future: The ORBES Experience
Author(s): James J. Stukel, Boyd R. Keenan
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: L. Smith No. Pages: 80
Performing Organization: University of Illinois

Abstract: This report is an integrated summary of various elements of Phase I of the Ohio River Basin Energy Study (ORBES) which includes three parallel but independent preliminary technology assessments and a number of in-depth topical studies.

EPA-600/2-76-044a, NTIS-PB251-136/AS

Title: Energy Supply, Demand/Need, and the Gaps Between; Volume I--An Overview
Author(s): J. W. Meyer, W. J. Jones, M. M. Kessler
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. O. Smith No. Pages: 79
Performing Organization: The M. W. Kellogg Company

Abstract: The report summarizes a critical review of selected literature pertaining to energy supply, demand, supply/demand imbalances, and the operational/technological developments needed to redress imbalances. Volume I is an overview.

EPA-600/2-76-044b, NTIS-PB243-977

Title: Energy Supply, Demand/Need, and the Gaps Between; Volume II--Monographs and Working Papers
Author(s): J. W. Meyer, W. J. Jones, M. M. Kessler
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. O. Smith No. Pages: 297
Performing Organization: The M. W. Kellogg Company

Abstract: The report summarizes a critical review of selected literature pertaining to energy supply, demand, supply/demand imbalances, and the operational/technological developments needed to redress imbalances. Volume II contains working papers and monographs which discuss certain aspects of the review more broadly.

EPA-600/2-76-049a, NTIS-PB251-829/AS

Title: Electrical Energy as an Alternate to Clean Fuels for Stationary Sources; Volume I
Author(s): R. M. Wells, W. E. Corbett
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Walter B. Steen No. Pages: 90
Performing Organization: Radian Corporation

Abstract: The report gives results of an examination of technical and environmental incentives for increased electrification in stationary use sectors. It compares the impacts which result from the production and consumption of equivalent quantities of natural gas, fuel oil, and electricity. It concludes that incentives for increased electrification are associated with the potential of this technique to reduce fossil fuel demands per se since direct consumption of fossil fuels appears to be more attractive from an energy efficiency and an environmental impact viewpoint.

EPA-600/2-76-049b, NTIS-PB251-830/AS

Title: Electrical Energy as an Alternate to Clean Fuels for Stationary Sources; Volume II--Appendix
Author(s): R. M. Wells, W. E. Corbett
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Walter B. Steen No. Pages: 250
Performing Organization: Radian Corporation

Abstract: The report gives results of an examination of technical and environmental incentives for increased electrification in stationary use sectors. It compares the impacts which result from the production and consumption of equivalent quantities of natural gas, fuel oil, and electricity.

Waste Heat/Waste Products

The overall objective of this activity is the identification, characterization, and assessment of liquid and solid effluents (including waste heat) from electricity generating facilities, and development, where appropriate, of control technology for the environmentally acceptable ultimate disposal of these effluents. The efforts conducted as part of this activity are designed to identify potential environmental effects and to define and reduce the costs of power plant waste disposal options.

Primary emphases in this activity are focused on developing the data required to promulgate effluent guidelines required by the Federal Water Pollution Control Act and on providing the background information required to promulgate regulations required by the Resource Recovery and Conservation Act for the disposal of wastes generated by the utility industry.

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EPA-600/7-79-069, NTIS-

Title: Economics of Disposal of Lime/Limestone Scrubbing Wastes: Sluge/Flyash Blending and Gypsum Systems
Author(s): J. W. Barrier, H. L. Faucett, L. J. Henson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 250
Performing Organization: TVA, Office of Agricultural and Chemical Development

Abstract: The report, the second in a series of economic evaluations of flue gas desulfurization (FGD) waste disposal systems, gives results of a study of two processes that produce a soil-like landfill material without using purchased additives.

EPA-600/7-79-077, NTIS-

Title: Environmental Residuals Output Model for Operation and Expansion of an Electric Power System
Author(s): Barry D. Evans
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: Wayne Bloch
Performing Organization: Tennessee Valley Authority

Abstract: The Tennessee Valley Authority has developed an Environmental Residual Output Model to predict amounts of residuals produced by different configurations of a power system. The model's predictive ability was demonstrated with historical data, and the model provides a quick method of determining relative environmental impact.

EPA-600/7-79-085, NTIS-

Title: Wet/Dry Cooling and Cooling Tower Blowdown Disposal in Synthetic Fuel and Steam-Electric Power Plants
Author(s): Harris Gold, David J. Goldstein
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: No. Pages: 212
Performing Organization: Water Purification Associates

Abstract: This report extends the results of a previous study dealing with the detailed determination of consumptive water use and wet-solids residuals for coal and oil shale conversion plants and coal-fired steam-electric power generation plants located in the western United States.

EPA-600/7-79-090, NTIS-

Title: Nonwater Quality Impacts of Closed-Cycle Cooling Systems and the Interaction of Stack Gas and Cooling Tower Plumes
Author(s): G. A. Englesson, M. C. Hu
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Theodore G. Brna No. Pages: 230
Performing Organization: Cameron Engineers, Inc.

Abstract: The report gives results of a literature survey of the nonwater quality impacts of closed-cycle cooling systems. Following discussions of cooling tower and stack gas plumes, interactions of these plumes are considered.

EPA-600/7-79-091, NTIS-

Title: Nuclear Power Plant Waste Heat Horticulture
Author(s): T. Sproston, E. P. Gaines, Jr., D. J. Marx
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Theodore G. Brna No. Pages: 150
Performing Organization: Vermont Yankee Nuclear Power Corporation

Abstract: The report gives results of a study of the feasibility of using low grade (70 F) waste heat from the condenser cooling water of the Vermont Yankee Nuclear Plant at Vernon for commercial food enhancement.

EPA-600/7-78-001, NTIS-PB278-270

Title: Energy Consumption of Advanced Wastewater Treatment at Ely, Minnesota
Author(s): Donald J. Hernandez
Sponsoring Agency: Corvallis Environmental Research Laboratory, Corvallis, OR
Project Officer: Donald J. Hernandez No. Pages: 26
Performing Organization: Corvallis Environmental Research Laboratory

Abstract: This report analyzes energy use for the advanced wastewater treatment plant at Ely, Minnesota, and breaks it down into three major categories: plant operation, support services, and indirect use.

EPA-600/7-78-004, NTIS-PB280-203

Title: Identification of Components of Energy-Related Wastes and Effluents
Author(s): E. D. Pellizzari
Sponsoring Agency: Environmental Research Laboratory, Athens, GA
Project Officer: A. L. Alford No. Pages: 524
Performing Organization: Research Triangle Institute

Abstract: Previous and ongoing research programs and reports were reviewed to summarize the existing and probable future data on chemical elements and organic compounds in solid waste and aqueous effluents from (a) coal liquefaction and gasification plants, (b) coal-fired power plants. (c) oil-shale processors, (d) oil refineries, (e) coal mines and (f) geothermal energy.

EPA-600/7-78-049, NTIS-PB283-082/AS

Title: Disposal of Solid Residue From Fluidized-Bed Combustion: Engineering and Laboratory Studies
Author(s): C. C. Sun, C. H. Peterson, R. A. Newby, W. G. Vaux, D. L. Keairns
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 210
Performing Organization: Westinghouse Research and Development Center

Abstract: The report gives results of an engineering and laboratory study to evaluate the environmental impact of disposing of solid residue (spent SO_2 sorbent and fuel ash) from fluidized-bed combustion (FBC) processes.

EPA-600/7-78-055a, NTIS-PB282-211/AS

Title: Water Recycle/Reuse Alternatives in Coal-Fired Steam-Electric Power Plants: Volume I. Plant Studies and General Implementation Plans
Author(s): James G. Noblett, Peter G. Christman
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Frederick A. Roberts No. Pages: 183
Performing Organization: Radian Corporation

Abstract: The report gives results of an investigation of water recycle/treatment/reuse alternatives in coal-fired power plants. The major water systems encountered were cooling, ash sluicing, and SO_2/particulate scrubbers.

EPA-600/7-78-055b, NTIS-PB284-676/AS

Title: Water Recycle/Reuse Alternatives in Coal-Fired Steam-Electric Power Plants: Volume II. Appendixes
Author(s): James G. Noblett, Peter G. Christman
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Frederick A. Roberts No. Pages: 515
Performing Organization: Radian Corporation

Abstract: The report gives results of an investigation of water recycle/treatment/reuse alternatives in coal-fired power plants. The major water systems encountered were cooling, ash sluicing, and SO_2/particulate scrubbers.

EPA-600/7-78-059, NTIS-PB282-993

Title: Field Investigation of Cooling Tower and Cooling Pond Plumes
Author(s): Ronald E. West
Sponsoring Agency: U.S. Environmental Protection Agency - Corvallis, OR
Project Officer: L. D. Winiarski No. Pages: 116
Performing Organization: Chemical Engineering Department, University of Colorado

Abstract: Measurements were made relating to the behavior of water-vapor plumes, from forced-draft cooling towers and from cooling ponds.

EPA-600/7-78-070, NTIS-PB284-200

Title: Potential Abatement Production and Marketing of Byproduct Sulfuric Acid in the U.S.
Author(s): J. I. Bucy, R. L. Torstrick, W. L. Anders, J. L. Nevins, P. A. Corrigan
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Charles J. Chatlynne No. Pages: 266
Performing Organization: Tennessee Valley Authority

Abstract: The report gives results of an evaluation of the market potential for sulfur and sulfuric acid byproducts of combustion in power plant boilers.

EPA-600/7-78-072, NTIS-PB281-582/AS

Title: Development of a Mathematical Basis for Relating Sludge Properties to FGD-Scrubber Operating Variables
Author(s): J. L. Phillips, J. C. Terry, K. C. Wilde, G. P. Pehrens, P. S. Lowell, J. L. Skloss, K. W. Luke
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert H. Borgwardt No. Pages: 360
Performing Organization: Radian Corporation

Abstract: The report gives results of research to investigate prospects for increasing the size of calcium sulfite sludge particles in flue gas desulfurization systems.

EPA-600/7-78-086, NTIS-PB285-797

Title: Engineering and Economic Analysis of Waste to Energy Systems
Author(s): E. Milton Wilson, John M. Leavens, Nathan W. Snyder, John J. Brehany, Richard F. Whitman
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: Harry Freeman No. Pages: 458
Performing Organization: The Ralph M. Parsons Company

Abstract: Waste quantities and characteristics in the U.S. are reviewed and waste-to-energy conversion technology evaluated. All waste materials, exclusive of those from mining operations, are considered.

EPA-600/7-78-102, NTIS-PB286-364

Title: Mathematical Model for Multiple Cooling Tower Plumes
Author(s): F. H. Y. Wu, C. Y Koh
Sponsoring Agency: Corvallis Environmental Research Center, Corvallis, OR
Project Officer: M. A. Shirazi
Performing Organization: W. M. Keck Laboratory of Hydraulics & Water Resources, California Institute of Technology

Abstract: A mathematical model is developed for the prediction of plume properties such as excess plume temperature, humidity and liquid phase moisture (water droplet), plume trajectory, width, and dilution at the merging locations and the beginning and ending points of the visible part of the plumes.

EPA-600/7-78-119, NTIS-PB285-937/AS

Title: Demetallization Catalyst Tests on Heavy Residual Oils
Author(s): V. V. Manshilin, W. J. Rhodes, P. Maruhnic, G. Nongbri
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. J. Rhodes No. Pages: 80
Performing Organization: Hydrocarbon Research, Inc.

Abstract: The report gives results of a cooperative project between the U.S. and the USSR to exchange technology on the demetallization step of an overall process to produce low sulfur fuel oil from heavy petroleum residua.

EPA-600/7-78-128, NTIS-

Title: Effects of Thermal Discharge on Aquatic Insects in the Tennessee Valley
Author(s): K. J. Tennessen, J. L. Miller
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: C. W. Hall No. Pages: 50
Performing Organization: Tennessee Valley Authority, Chattanooga, TN

Abstract: The Tennessee Valley Authority (TVA) conducted studies (1) to determine the thermal tolerances of selected aquatic insects and (2) to investigate growth and emergence of those insects in the vicinity of TVA electric generating plants. Results of the study will be used to help establish thermal effluent limits to protect the aquatic ecosystem.

EPA-600/7-78-152, NTIS-PB285-924/AS

Title: Optimization of Design Specifications for Large Dry Cooling Systems
Author(s): Tzvi Rozenman, James M. Fake, Joseph M. Pundyk
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Theodore G. Brna No. Pages: 315
Performing Organization: PFR Engineering Systems, Inc.

Abstract: The report presents a methodology for optimizing design specifications of large, mechanical-draft, dry cooling systems. A multivariate, nonlinear, constrained optimization technique searches for the combination of design variables to determine the cooling system with the lowest annual cost.

EPA-600/7-78-159, NTIS-PB287-180/AS

Title: Catalyst Evaluation for Denitrogenation of Petroleum Residua and Coal Liquids
Author(s): Cecelia C. Kang, Jeffrey Gendler
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Thomas W. Petrie No. Pages: 50
Performing Organization: Hydrocarbon Research, Inc.

Abstract: The report covers the final phase of a study of catalysts for demetallization of heavy residual oils and for denitrogenation. Objectives were to evaluate some commercial catalysts for denitrogenation activity in petroleum residua and coal liquids, and then to develop an improved catalyst for denitrogenation of heavy coal liquids.

EPA-600/2-77-195, NTIS-

Title: Final Report for Low Pressure Tests of the CPU-400 Pilot Plant
Author(s): Not identified
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: R.A. Chapman No. Pages: 406
Performing Organization: Combustion Power Company, Inc.

Abstract: This report presents the progress made during the component design phase of a program to develop an economical and environmentally safe waste-energy system known as the CPU-400.

EPA-600/7-77-026, NTIS-PB266-104/AS

Title: Analysis and Simulation of Recycle SO_2-Lime Slurry in TCA Scrubber System
Author(s): C. Y. Wen, F. K. Fong
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. H. Borgwardt No. Pages: 118
Performing Organization: West Virginia University

Abstract: The report gives results of an analysis of flue gas desulfurization by a turbulent contact absorber (TCA) employing lime slurry, including the development of performance equations for the scrubber-hold tank recycle system. Performance characteristics investigated include pressure drop of the scrubber, CO_2 and SO_2 absorptions, and lime utilization.

EPA-600/7-77-051, NTIS-PB269-270/AS

Title: An Evaluation of the Disposal of Flue Gas Desulfurization Wastes in Mines and the Ocean: Initial Assessment
Author(s): R. R. Lunt, C. B. Cooper, S. L. Johnson, J. E. Oberholtzer, G. R. Schimke, W. I. Watson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones   No. Pages: 335
Performing Organization: Arthur D. Little, Inc.

Abstract: The report gives an initial assessment of the feasibility of disposing of flue gas desulfurization wastes in mines and in the ocean. The purpose of the assessment was to evaluate environmental technical, regulatory, and economic aspects of the use of such disposal sites.

EPA-600/7-77-052, NTIS-PB271-728/AS

Title: Disposal of By-Products From Nonregenerable Flue Gas Desulfurization Systems: Second Progress Report
Author(s): J. Rossoff, R. C. Rossi, R. B. Fling, W. M. Graven, P. P. Leo
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones   No. Pages: 345
Performing Organization: The Aerospace Corporation

Abstract: The report gives results of the first 3 years of study to determine environmentally sound methods for disposing of wastes from nonregenerable flue gas desulfurization systems. Untreated and treated wastes from seven different scrubbers at eastern and western plants, using lime, limestone, or double-alkali absorbents, were characterized.

EPA-600/7-77-061, NTIS-PB268-525/AS

Title: Sludge Oxidation in Limestone FGD Scrubbers
Author(s): Robert H. Borgwardt
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert H. Borgwardt   No. Pages: 74
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The report gives results of an experimental study of techniques suitable for forcing the oxidation of calcium sulfite (a throwaway product of flue gas desulfurization scrubbers now operating in the U.S.) to gypsum, over a range of scrubber operating conditions applicable to the use of high-sulfur coals.

EPA-600/7-77-063, NTIS-PB271-022/AS

Title: Renovation of Power Plant Cooling Tower Blowdown for Recycle by Evaporation: Crystallization with Interface Enhancement
Author(s): Hugo H. Sephton
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Fred Roberts No. Pages: 60
Performing Organization: The University of California

Abstract: The report confirms the effectiveness of a novel evaporation method which reduces the energy and capital cost requirements for the renovation/recycle of industrial wastewaters.

EPA-600/7-77-118, NTIS-PB280-135

Title: Data Base for Standards/Regulations Development for Land Disposal of Flue Gas Cleaning Sludges
Author(s): Dallas E. Weaver, Curtis J. Schmidt, John P. Woodyard
Sponsoring Agency: Municipal Environmental Research Laboratory, Cincinnati, OH
Project Officer: Donald E. Sanning No. Pages: 299
Performing Organization: SCS Engineers

Abstract: This study addresses the problem of flue gas cleaning (FGC) sludge disposal to the land. It considers the problem from a potential regulatory approach, looking at the various aspects which could play a part in determining the best practical control technology currently available.

EPA-600/7-77-123, NTIS-PB284-111/AS

Title: Lime/Limestone Scrubbing Sludge Characterization--Shawnee Test Facility
Author(s): J. L. Crowe, S. K. Seale
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 48
Performing Organization: Tennessee Valley Authority

Abstract: The report summarizes progress on a project to determine the range of variability of the solids from scrubbers at the Shawnee Test Facility, and to attempt to correlate this variability with plant operating conditions.

EPA-600/7-77-134, NTIS-

Title: Environmental Residuals Output Model for Operation and Expansion of an Electric Power System
Author(s): Barry D. Evans
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: Wayne Bloch
Performing Organization: Tennessee Valley Authority

Abstract: The Tennessee Valley Authority has developed an Environmental Residual Output Model to predict amounts of residuals produced by different configurations of a power system.

EPA-600/7-77-137, NTIS-PB276-625/AS

Title: Wet/Dry Cooling Systems for Fossil-Fueled Power Plants: Water Conservation and Plume Abatement
Author(s): M. C. Hu, G. A. Englesson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Theodore G. Brna No. Pages: 290
Performing Organization: United Engineers and Constructors, Inc.

Abstract: The report gives results of a study of technical and economic feasibilities of wet/dry cooling towers for water conservation and vapor plume abatement. Results of cost optimizations of wet/dry cooling for 1000-MWe fossil-fueled power plants are presented.

EPA-600/7-77-139, NTIS-PB276-879/AS

Title: Environmental Assessment of Solid Residues From Fluidized-Bed Fuel Processing
Author(s): Ralph Stone, Richard Kahle
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Walter B. Steen No. Pages: 500
Performing Organization: Ralph Stone and Company, Inc.

Abstract: The report gives results of the first 15 months of an environmental assessment of solid residues generated by fluidized-bed combustion (FBC) of coal and gasification of oil. Included are a literature search, chemical and physical residue characterization, laboratory leaching studies, and testing of residues in various materials and agricultural applications.

EPA-600/2-76-024, NTIS-PB250-732/AS

Title: Reuse of Power Plant Desulfurization Waste Water
Author(s): L. J. Bornstein, R. B. Fling, F. D. Hess, R. C. Rossi, J. Rossoff
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Fred Roberts No. Pages: 136
Performing Organization: The Aerospace Corporation

Abstract: The report gives results of an assessment of the potential reuse of liquor from nonregenerable flue gas desulfurization systems by applying available water treatment processes.

EPA-600/2-76-070, NTIS-PB251-876/AS

Title: Disposal of Flue Gas Cleaning Wastes: EPA Shawnee Field Evaluation-Initial Report
Author(s): R. B. Fling, W. M. Graven, F. D. Hess, P. P. Leo, R. C. Rossi, J. Rossoff
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 212
Performing Organization: The Aerospace Corporation

Abstract: The report describes progress made during the initial phase of a field evaluation program, conducted by EPA, to assess techniques for the disposal of power plant flue gas desulfurization (FGD) wastes. To site chosen for the evaluation was TVA's Shawnee Power Station, Paducah, Kentucky.

EPA-600/7-76-018, NTIS-PB259-211/AS

Title: Control of Waste and Water Pollution From Power Plant Flue Gas Cleaning Systems: First Annual R and D Report
Author(s): P. P. Leo, J. Rossoff
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 178
Performing Organization: The Aerospace Corporation

Abstract: The report summarizes and assesses the state of research and development in the fields of nonregenerable flue gas cleaning (FGC) waste treatment, utilization, and disposal, as well as water reuse technology, for coal-fired utility power plants.

EPA-600/7-76-020, NTIS-PB264-874/AS

Title: A State-of-the-Art Report on Intake Technolgies
Author(s): S. S. Ray, R. L. Snipes, D. A. Tomljanovich
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. P. Chasse No. Pages: 91
Performing Organization: TVA, Power Research Staff

Abstract: The report presents an updated evaluation of mechanisms and intake designs for reducing the number of fish entrained and impinged at water intake facilities.

Conventional Combustion Environmental Assessment

The objective of this program is the comprehensive assessment of the environmental, economic, and energy impacts of multimedia emissions of pollutants from stationary industrial, utility, residential, and commercial conventional combustion processes. Primary emphases of the program are on identifying and evaluating (1) the relationships between various emissions and residuals from conventional combustion, (2) multi-pollutant synergistic impacts, (3) cross-media impacts, (4) environmental impact tradeoff as relative emission levels of individual pollutants are adjusted by control systems, and (5) unregulated pollutant emissions, impacts, and control methods. The program seeks to integrate information and data from previously separate environmental efforts (e.g., the SO_x NO_x etc. R&D programs) into a systematic, coordinated, environmental assessment structure.

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EPA-600/7-79-026, NTIS-

Title: Typical Costs for Electric Energy Generation and Environmental Controls
Author(s): M. G. Klett
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Vincent W. Uhl No. Pages: 25
Performing Organization: Gilbert Associates, Inc.

Abstract: The report gives typical costs for electric power generating plants and their environmental controls for installations of 1000-and 500-MWe capacity, including the expected range of uncertainty.

EPA-600/7-79-032, NTIS-PB292-931

Title: Level 1 Environmental Assessment Performance Evaluation
Author(s): Eva D. Estes, Franklin Smith, Denny E. Wagoner
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William B. Kuykendal, No. Pages: 140
Performing Organization: Research Triangle Institute

Abstract: The report gives results of a two-phased evaluation of Level 1 environmental assessment procecedures. Results from Phase I, a field evaluation of the Source Assessment Sampling System (SASS), showed that the SASS train performed well within the desired factor of 3 Level 1 accuracy limit.

EPA-600/7-79-050a, NTIS-PB292-539

Title: Proceedings of the Third Stationary Source Combustion Symposium; Volume I. Utility, Industrial, Commercial, and Residential Systems
Author(s): Joshua S. Bowen, Robert E. Hall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 250
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The proceedings document the approximately 50 presentations made during the symposium, March 5-8, 1979, in San Francisco. The symposium dealt with subjects relating both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency.

EPA-600/7-79-050b, NTIS-PB292-540

Title: Proceedings of the Third Stationary Source Combustion Symposium; Volume II. Advanced Processes and Special Topics
Author(s): Joshua S. Bowen, Robert E. Hall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 250
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The proceedings document the approximately 50 presentations made during the symposium, March 5-8, 1979, in San Francisco. The symposium dealt with subjects relating both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency.

EPA-600/7-79-050c, NTIS-PB292-541

Title: Proceedings of the Third Stationary Source Combustion Symposium; Volume III. Stationary Engine and Industrial Process Combustion Systems
Author(s): Joshua S. Bowen, Robert E. Hall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 250
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The proceedings document the approximately 50 presentations made during the symposium, March 5-8, 1979, in San Francisco. The symposium dealt with subjects relating both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency.

EPA-600/7-79-050d, NTIS-PB292-542

Title: Proceedings of the Third Stationary Source Combustion Symposium; Volume IV. Fundamental Combustion Research and Environmental Assessment
Author(s): Joshua S. Bowen, Robert E. Hall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 250
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The proceedings document the approximately 50 presentations made during the symposium, March 5-8, 1979, in San Francisco. The symposium dealt with subjects relating both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency.

EPA-600/7-79-050e, NTIS-

Title: Proceedings of the Third Stationary Source Combustion Symposium; Volume V. Addendum
Author(s): Joshua S. Bowen, Robert E. Hall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 250
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The proceedings document the approximately 50 presentations made during the symposium, March 5-8, 1979, in San Francisco. The symposium dealt with subjects relating both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency.

EPA-600/7-79-063a, NTIS-

Title: Approach to Level 2 Analysis Based on Level 1 Results, MEG Categories and Compounds, and Decision Criteria
Author(s): L. E. Ryan, R. G. Beimer, R. F. Maddalone
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Walter B. Steen No. Pages: 150
Performing Organization: TRW, Inc.

Abstract: The report describes an approach to the decision criteria needed to proceed from the initial emission screening analysis (Level 1) to the detailed emission characterization (Level 2), and a Level 2 analytical approach.

EPA-600/7-78-015, NTIS-PB277-088/AS

Title: SAM/IA: A Rapid Screening Method for Environmental Assessment of Fossil Energy Process Effluents
Author(s): L. M. Schalit, K. J. Wolfe
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Joshua S. Bowen No. Pages: 150
Performing Organization: Acurex Corporation/Aerotherm Division

Abstract: The report describes the simplest member of a sequence of Source Analysis Models (SAMs) of increasing complexity and thoroughness which can be used as tools to help with one or more of five tasks involved in the environmental assessment of energy and industrial processes.

EPA-600/7-78-076, NTIS-

Title: Application of Computer Graphics to Environmental Assessment of Energy Systems
Author(s): Malcolm C. Babb, Harrison R. Hickey, Jr.
Sponsoring Agency: Officer of Energy, Minerals, and Industry, Washington, D. C.
Project Officer: Wayne Bloch
Performing Organization: Tennessee Valley Authority

Abstract: This report summarizes the first two years of research designed to demonstrate applications of computer graphics to environmental analyses associated with the evaluation of impacts from development of conventional energy systems.

EPA-600/7-78-081, NTIS-PB285-936

Title: Environmental Assessment of Coal Transportation
Author(s): Michael F. Szabo
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: J. F. Martin No. Pages: 152
Performing Organization: PEDCo Environmental, Inc.

Abstract: As a result of an increase in U.S. coal production to help achieve energy independence, much attention is being focused on regional-scale transportation of coal in volumes projected to reach 1.32 billion metric tons (1.2 billion tons) in 1985.

EPA-600/7-78-084, NTIS-PB286-231

Title: Energy Requirements of Present Pollution Control Technology
Author(s): R. W. Serth, R. S. Hockett
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: C. C. Lee No. Pages: 101
Performing Organization: Monsanto Research Corporation

Abstract: Estimates of energy requirements for pollution control at stationary sources in the United States, as compiled from the literature, are presented and discussed.

EPA-600/7-78-090, NTIS-PB283-716/AS

Title: Assessment of Technology for Control of Toxic Effluents from the Electric Utility Industry
Author(s): J. D. Colley, C. A. Muela, M. L. Owen, N. P. Meserole, J. B. Riggs, J. C. Terry
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 155
Performing Organization: Radian Corporation

Abstract: The report assesses the applicability of control technologies for reducing priority pollutants in effluents from the steam-electric power generating industry.

EPA-600/7-78-107, NTIS-PB282-940

Title: Environmental Assessment of Solid Residues from Fluidized-Bed Fuel Processing: Final Report
Author(s): Ralph Stone, Richard L. Kahle
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Walter B. Steen No. Pages: 325
Performing Organization: Ralph Stone and Company, Inc.

Abstract: The report gives results of a 2-year study of the environmental assessment of solid residues generated by fluidized-bed combustion (FBC) of coal and gasification of oil.

EPA-600/7-78-151, NTIS-PB287-210/AS

Title: Status of IERL-RTP Environmental Assessment Methodologies for Fossil Energy Processes
Author(s): John L. Warren
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Walter B. Steen No. Pages: 100
Performing Organization: Research Triangle Institute

Abstract: The report summarizes the status of the following environmental assessement (EA) methodologies: current process technology background, environmental data acquisition, current environmental background, environmental objectives development, control technology assessment, and environmental alternatives analysis.

EPA-600/7-78-153a, NTIS-PB287-937/AS

Title: Low-Sulfur Western Coal Use in Existing Small and Intermediate Size Boilers
Author(s): Kenneth L. Maloney
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: David G. Lachapelle No. Pages: 436
Performing Organization: KVB, Inc.

Abstract: The report gives results of testing of 10 representative coal-fired boilers in the Upper-Midwest, including an assessment of SO_x, NO_x, CO, unburned HC, and particulate emissions from these units, as well as an assessment of the operational impact of coal switching.

EPA-600/7-78-157, NTIS-PB285-397/AS

Title: Water Consumption and Costs for Various Steam Electric Power Plant Cooling Systems
Author(s): M. C. Hu, G. F. Pavlenco, G. A. Englesson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Theodore G. Brna No. Pages: 150
Performing Organization: Cameron Engineers, Inc.

Abstract: The report gives results of a state-of-the-art study, addressing consumptive water use and related costs of various steam electric power plant cooling systems, the avilability of water for all uses by area, and the impact of legal constraints on water use in the U.S.

EPA-600/7-78-164a, NTIS-PB289-942

Title: Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume I. Executive Summary
Author(s): C. Leavitt, K. Arledge, W. Hamersma, R. Maddalone, R. Beimer, G. Richard, M. Yamada
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Wade H. Ponder No. Pages: 25
Performing Organization: TRW, Inc.

Abstract: The report gives results of a comparative multimedia assessment of coal-versus oil-firing in a controlled industrial boiler, to determine relative environmental, energy, economic, and societal impacts.

EPA-600/7-78-164b, NTIS-PB289-941

Title: Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume II. Comparative Assessment
Author(s): C. Leavitt, K. Arledge, W. Hamersma, R. Maddalone, R. Beimer, G. Richard, M. Yamada
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Wade H. Ponder   No. Pages: 100
Performing Organization: TRW, Inc.

Abstract: The report gives results of a comparative multimedia assessment of coal-versus oil-firing in a controlled industrial boiler, to determine relative environmental, energy, economic, and societal impacts. The assessment generally supports the national energy plan for increased use of coal by projecting that the environmental insult from coal-firing is not significantly different from that from oil-firing.

EPA-600/7-78-164c, NTIS-PB291-236

Title: Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume III. Comprehensive Assessment and Appendices
Author(s): C. Leavitt, K. Arledge, W. Hamersma, R. Maddalone, R. Beimer, G. Richard, M. Yamada
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Wade H. Ponder   No. Pages: 300
Performing Organization: TRW, Inc.

Abstract: The report gives results of a comparative multimedia assessment of coal- versus oil-firing in a controlled industrial boiler, to determine relative environmental, energy, economic, and societal impacts.

EPA-600/7-78-168, NTIS-PB290-331

Title: Symposium Proceedings: Process Measurements for Environmental Assessment
Author(s): Eugene A. Burns
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James A. Dorsey   No. Pages: 300
Performing Organization: TRW Systems Group

Abstract: The report documents the 26 presentations made at the Process Measurements for Environmental Assessment Symposium, sponsored by the Process Measurements Branch of EPA's Industrial Environmental Laboratory, Research Triangle Park. The objective was to bring together people who were responsible for planning and implementing sampling and analysis programs for multimedia environmental assessment.

EPA-600/7-78-175, NTIS-PB286-982/AS

Title: Environmental Assessment for Residual Oil Utilization-Second Annual Report
Author(s): M. F. Tyndall, F. D. Kodras, J. K. Puckett, R. A. Symonds, W. C. Yu
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Samuel L. Rakes No. Pages: 173
Performing Organization: Catalytic, Inc.

Abstract: The report describes progress in an environmental assessment of processes utilizing residual oil for electric power generation.

EPA-600/2-77-008a, NTIS-PB264-068/AS

Title: Combustion Additives for Pollution Control-A State-of-the-Art Review
Author(s): H. H. Krause, L. J. Hillenbrand, A. E. Weller, D. W. Locklin
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. S. Lanier No. Pages: 125
Performing Organization: Battelle-Columbus Laboratores

Abstract: The report is a state-of-the-art review of the potential of combustion-type fuel additives in reducing air pollutant emissions from oil and coal firing.

EPA-600/2-77-008b, NTIS-PB264-065/AS

Title: Experimental Evaluation of Fuel Oil Additives for Reducing Emissions and Increasing Efficiency of Boilers
Author(s): Robert D. Giammar, Albert E. Weller, David W. Locklin, Horatio H. Krause
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. S. Lanier No. Pages: 150
Performing Organization: Battelle-Columbus Laboratories

Abstract: The report gives results of an evaluation of the effectiveness of combustion type fuel oil additives to reduce emissions and increase efficiency in a 50-bhp (500 kw) commercial oil-fired packaged boiler.

EPA-600/7-77-039, NTIS-PB268-289

Title: Environmental Assessment of Geopressured Waters and Their Project Uses
Author(s): J. S. Wilson, J. R. Hamilton, J. A. Manning, P. E. Muehlberg
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 96
Performing Organization: Dow Chemical U. S. A.

Abstract: The deep geopressured reservoirs along the Texas and Louisiana Gulf Coast are believed to offer a large potential supply of both natural gas and heat energy. Major environmental effects of development are divided into emissions and geological considerations. In view of the uncertainty of extensive resource development and the relatively long time frame involved, only moderate emphasis should be placed on environmental research at this time.

EPA-600/7-77-046 NTIS-PB270-088

Title: Seeking Environmental Compatibility A Review of Environmental Issues Related to the Transportation of Alaskan North Slope Crude Oil
Author(s): Richard D. Brown, Richard M. Helfand
Sponsoring Agency: Office of Energy, Minerals, and Industry Washington, D. C. 20460
Project Officer: Richard Ball No. Pages: 175
Performing Organization: The MITRE Coporation

Abstract: The onset of Alaskan and offshore West Coast Oil requires west-to-east movement of oil which is in excess of anticipated West Coast demand. Proposals for this movement include Canadian and U.S. pipelines to carry crude to Northern Tier States which face a decline in Canadian exports, pipelines from California to mid-western states, tanker traffic through a canal in Central America or around Cape Horn, and exchanges of oil with foreign countries. Environmental issues center on impacts affecting air and water quality.

EPA-600/7-77-073a, NTIS-PB270-923/AS

Title: Proceedings of the Second Stationary Source Combustion Symposium Volume I. Small Industrial, Commercial, and Residential Systems
Author(s): J. S. Bowen, R. E. Hall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. E. Hall No. Pages: 400
Performing Organization:

Abstract: The proceedings document the 50 presentations made during the Second Stationary Source Combustion Symposium held in New Orleans, LA, August 29-September 1, 1977. The symposium dealt with subjects relating both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency.

EPA-600/7-77-073b, NTIS-PB271-756/AS

Title: Proceedings of the Second Stationary Source Combustion Symposium Volume II. Utility and Large Industrial Boilers
Author(s): J. S. Bowen, R. E. Hall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. E. Hall No. Pages: 425
Performing Organization:

Abstract: The proceedings document the 50 presentations made during the Second Stationary Source Combustion Symposium held in New Orleans, LA, August 29-September 1, 1977. The symposium dealt with subjects relating both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency.

EPA-600/7-77-073c, NTIS-PB271-757/AS

Title: Proceedings of the Second Stationary Source Combustion Symposium Volume III. Stationary Engine, Industrial Process Combustion System, and Advanced Processes
Author(s): J. S. Bowen, R. E. Hall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. E. Hall No. Pages: 450
Performing Organization:

Abstract: The proceedings document the 50 presentations made during the Second Stationary Source Combustion Symposium held in New Orleans, LA, August 29-September 1, 1977. The symposium dealt with subjects relating both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency.

EPA-600/7-77-073d, NTIS-PB274-029/AS

Title: Proceedings of the Second Stationary Source Combustion Symposium Volume IV. Fundamental Combustion Research
Author(s): J. S. Bowen, R. E. Hall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. E. Hall No. Pages: 475
Performing Organization:

Abstract: The proceedings document the 50 presentations made during the Second Stationary Source Combustion Symposium held in New Orleans, LA, August 29-September 1, 1977. The symposium dealt with subjects relating both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency.

EPA-600/7-77-073e, NTIS-PB274-897/AS

Title: Proceedings of the Second Stationary Source Combustion Symposium Volume V. Addendum
Author(s): J. S. Bowen, R. E. Hall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. E. Hall No. Pages: 500
Performing Organization:

Abstract: The proceedings document the 50 presentations made during the Second Stationary Source Combustion Sumposium held in New Orleans, LA, August 29-September 1, 1977. The symposium dealt with subjects relating both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency.

EPA-600/7-77-077, NTIS-PB270-086/AS

Title: EPA's Stationary Source Combustion Control Technology Program-FY 1976
Author(s):
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Joshua S. Bowen No. Pages: 50
Performing Organization: Acurex Corporation/Aerotherm Division

Abstract: The report summarizes the objectives, highlights, and accomplishments of EPA's research and development program for characterization, assessment, and control of the environmental impact of stationary combustion processes and energy conversion technologies.

EPA-600/7-77-081, NTIS-PB271-962/AS

Title: Process Technology Background for Environmental Assessment/Systems Analysis Utilizing Residual Fuel Oil
Author(s): M. F. Tyndall, R. C. Foster, E. K. Jones, F. D. Kodras
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Samuel L. Rakes No. Pages: 75
Performing Organization: Catalytic, Inc.

Abstract: The report gives results of environmental and economic assessments of processes using residual oil to generate electricity. Emphasis was on three commercially operating processes.

EPA-600/7-77-136a, NTIS-PB276-919/AS

Title: Multimedia Environmental Goals for Environmental Assessment, Volume I
Author(s): J. G. Cleland, G. L. Kingsbury
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: T. Kelly Janes No. Pages: 326
Performing Organization: Research Triangle Institute

Abstract: The report gives results of a study of the derivation of Multimedia Environmental Goals (MEG's). MEG's are levels of significant contaminants or degradents(in ambient air, water, or land, or in emissions or effluents conveyed to the ambient media) that are judged to be: appropriate for preventing certain negative effects in the surrounding populations or ecosystems; or representative of the control limits achievable through technology.

EPA-600/7-77-136b, NTIS-PB276-920/AS

Title: Multimedia Environmental Goals for Environmental Assessment, Volume II. MEG Charts and Background Information
Author(s): J. G. Cleland, G. L. Kingsbury
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: T. Kelly Janes No. Pages: 432
Performing Organization: Research Triangle Institute

Abstract: The report gives results of a study of the derivation of Multimedia Environmental Goals (MEG's).

EPA-600/2-76-046a, NTIS-PB251-612/AS

Title: Preliminary Emissions Assessment of Conventional Stationary Combustion Systems; Volume I--Executive Summary
Author(s): Normal Surprenant, Robert Hall, Leonard M. Seale
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. A. Venezia No. Pages: 76
Performing Organization: GCA/Technology Division

Abstract: The report gives results of a preliminary emissions assessment of the air, water, and solid waste pollutants produced by conventional stationary combustion systems.

EPA-600/2-76-046b, NTIS-PB252-175/AS

Title: Preliminary Emissions Assessment of Conventional Stationary Combustion Systems; Volume II--Final Report
Author(s): Norman Surprenant, Robert Hall, Steven Slater, Thomas Susa, Martin Sussman, Charles Young
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. A. Venezia No. Pages: 535
Performing Organization: GCA/Technology Division

Abstract: The report gives results of a preliminary emissions assessment of the air, water, and solid waste pollutants produced by conventional stationary combustion systems.

EPA-600/2-76-046c, NTIS-PB257-849/AS

Title: Preliminary Emissions Assessment of Conventional Stationary Combustion Systems; Volume III, Update (12/75-6/76)
Author(s): Norman Surprenant
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. A. Venezia No. Pages: 48
Performing Organization: GCA/Technology Division

Abstract: The report updates Volume II of this series (EPA-600/2-76-046b). It identifies and discusses major recent ongoing and proposed programs in the area of pollutant emissions from combustion sources.

EPA-600/2-76-056, NTIS-PB251-622/AS

Title: Comparison of Fossil and Wood Fuels
Author(s): E. H. Hall, C. M. Allen, D. A. Ball, J. E. Burch, H. N. Conkle, W. T. Lawhon, T. J. Thomas, G. R. Smithson, Jr.
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. D. Kilgroe No. Pages: 240
Performing Organization: Battelle-Columbus Laboratories

Abstract: The report gives results of a preliminary assessment, comparing the use of wood as a fuel for a commercial electric power plant in Vermont, with that of clean fossil fuels or fossil fuels with suitable pollution control technology.

EPA-600/2-76-101, NTIS-PB255-842/AS

Title: Evaluation of Pollution Control in Fossil Fuel Conversion Processes: Final Report
Author(s): E. M. Magee
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. J. Rhodes No. Pages: 250
Performing Organization: Exxon Research and Engineering Company

Abstract: The review gives an overview of work, between June 1972 and January 1976, on various environmental aspects of fossil fuels. Details of this work is presented in 14 reports published during this same period. The details include potential pollutants in fossil fuels; quantities of solid, liquid, and gaseous effluents from coal treatment and conversion to gaseous and liquid fuels; and an analytical test plan for coal conversion systems.

EPA-600/2-76-153, NTIS-PB257-134/AS

Title: Fuel Gas Environmental Impact
Author(s): F. L. Robson, W. A. Blecher, C. B. Colton
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. J. Rhodes No. Pages: 300
Performing Organization: United Technologies Research Center

Abstract: The objective of the report is to help define the environmental impact of combinations of: (1) fossil fuel gasification systems, (2) low- and high-temperature fuel gas cleanup processes, and (3) advanced cycle power systems.

EPA-600/2-76-176, NTIS-PB257-103/AS

Title: Air, Water, and Solid Residue Prioritization Models for Conventional Combustion Sources
Author(s): E. C. Eimutis, C. M. Moscowitz, J. L. Delaney, R. P. Quill, D. L. Zanders
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. A. Venezia No. Pages: 53
Performing Organization: Monsanto Research Corporation

Abstract: The report describes mathematical models that were developed to relatively rank the environmental impact of water and solid residue emissions.

Conservation and Advanced Systems

The general objectives of this program are to develop environmental assessments of energy conservation methods and advanced energy systems and to contribute to the development of pollution control technologies for resource recovery, energy-conserving industrial processes, advanced energy conversion cycles, and advanced energy systems–solar and geothermal energy. Techniques and technologies are under development by the Department of Energy, the Department of Housing and Urban Development, and other agencies in these areas, and by the EPA in the resource recovery area. Outputs will support two interagency working groups–the Interagency Task Force on Energy Conservation in Buildings and the Interagency Task Force on Energy Conservation in Industry, as well as EPA regulatory responsibilities, by ensuring the environmental compatibility of techniques and technologies in each subject energy area.

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EPA-600/2-78-114, NTIS-

Title: Use of Solar Energy to Heat Anaerobic Digesters; Part I - Technical and Economic Feasibility Study; Part II - Economic Feasibility Throughout the United States
Author(s): Jess W. Malcolm, David E. Cassel
Sponsoring Agency: Municipal Evironmental Research Laboratory, Cincinnati, OH
Project Officer: R. V. Villiers No. Pages: 101
Performing Organization: Environmental Systems, Incorporated

Abstract: Retrofitting a solar energy collection and heat transfer system to a digester at Annapolis, Maryland was proven feasible in the first part of the study and the concept of using solar energy for digester heating throughout the United States, including Fairbanks, Alaska, was shown to be economically feasible in the second part of the study.

EPA-600/7-78-014, NTIS-PB281-023

Title: Survey of Environmental Regulations Applying to Geothermal Exploration, Development and Use
Author(s): Mrs. Gene V. Beeland
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: R. P. Hartley No. Pages: 254
Performing Organization: WAPORA, Inc.

Abstract: Federal, state, and local environmental laws and regulations that apply to geothermal energy development are summarized. Most attention is given to thoe regulations which deal with air pollution, water pollution, solid wastes and impact assessment.

EPA-600/7-78-047, NTIS-PB281-189

Title: Preliminary Environmental Assessment of Energy Conversion Processes for Agricultural and Forest Product Residues; Volume I
Author(s): Benjamin J. Gikis
Sponsoring Agency: Municipal Environmental Research Laboratory, Cincinnati, OH
Project Officer: John O. Burckle No. Pages: 178
Performing Organization: Stanford Research Institute

Abstract: A preliminary assessment was made of the environmental impacts of several types of conversion processes for producing energy or fuels from agricultural and forestry residues.

EPA-600/7-78-065, NTIS-PB284-027

Title: Sampling and Analysis Research Program at the Paraho Shale Oil Demonstration
Author(s): J. E. Cotter, C. H. Prien, J. J. Schmidt-Collerus, D. J. Powell, R. Sung, C. Habenicht, R. E. Pressey
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: No. Pages: 80
Performing Organization: TRW Environmental Engineering Division

Abstract: The overall objective of the test program was to obtain preliminary quantitative and qualitative measurements of air, water, and solid compositions, and to gain experience that would lead to improved sampling procedures and the determination of priorities for sampling and analysis of shale oil recovery operations.

EPA-600/7-78-078, NTIS-PB282-032/AS

Title: Applying Fabric Filtration to Refuse-Fired Boilers: A Pilot-Scale Investigation
Author(s): J. D. McKenna, J. C. Mycock, R. L. Miller, K. D. Brandt
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner No. Pages: 120
Performing Organization: Nashville Thermal Transfer Corporation

Abstract: The report gives results of a pilot-scale investigation to determine the techno-economic feasibility of applying fabric filter dust collectors to solid refuse fired boilers.

EPA-600/7-78-101, NTIS-PB282-546

Title: Pollution Control Guidance for Geothermal Energy Development
Author(s): Robert P. Hartley
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: R. P. Hartley No. Pages: 146
Performing Organization: Industrial Environmental Research Laboratory, Cincinnati, OH

Abstract: This report summarizes the EPA regulatory approach toward geothermal energy development. The state of knowledge is described with respect to the constituents of geothermal effluents and emissions, including water, air, solid wastes, and noise.

EPA-600/7-78-121, NTIS-PB290-034

Title: Proceedings of the Second Workshop on Sampling Geothermal Effluents
Author(s): Subir Sanyal, Richard Weiss
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Las Vegas, NV
Project Officer: Donald B. Gilmore
No. Pages: 256
Performing Organization: Geonomics, Inc.

Abstract: This is a compilation of papers presented at the second in a series of workshops on sampling and analysis of geothermal effluents held February 15-17, 1977, at Las Vegas, Nevada.

EPA-600/7-78-143, NTIS-PB286-936

Title: Investigation of Advanced Thermal-Chemical Concepts for Obtaining Improved MSW-Derived Products
Author(s): N. L. Hecht, B. L. Fox, D. S. Duvall
Sponsoring Agency: Municipal Environmental Research Laboratory, Cincinnati, OH
Project Officer: Albert Klee
No. Pages: 118
Performing Organization: University of Dayton Research Institute

Abstract: This study concentrated on those processes designed to produce a carbon char, a powdered fuel, and liquid and gaseous fuels from the municipal solid waste. The chemical and thermal treatments of most interest were the Worcester Polytechnic's hydrogenation-liquefaction process, Wright-Malta's steam injection pyrolysis process, and cellulose embrittlement.

EPA-600/2-77-155a, NTIS-

Title: St. Louis Demonstration Final Report: Refuse Processing Plant Equipment, Facilities, and Environmental Evaluations
Author(s): D. E. Fiscus, M. P. Schrag, P. G. Gorman, L. J. Shannon
Sponsoring Agency: Municipal Environmental Research Laboratory, Cincinnati, OH
Project Officer: Carlton Wiles
No. Pages: 347
Performing Organization: Midwest Research Institute

Abstract: This report presents the results of processing plant evaluations of the St. Louis-Union Electric Refuse Fuel Project, including equipment and facilities as well as assessment of environmental emissions at both the processing and power plants.

EPA-600/2-77-155b, NTIS-

Title: St. Louis Demonstration Final Report: Power Plant Equipment, Facilities and Environmental Evaluations
Author(s): P. G. Gorman, M. P. Schrag, L. J. Shannon, D. E. Fiscus
Sponsoring Agency: Municipal Environmental Research Laboratory, Cincinnati, OH
Project Officer: Carlton C. Wiles, James D. Kilgroe, J. Robert Holloway
No. Pages: 430
Performing Organization: Midwest Rsearch Institute

Abstract: This report describes the results of the evaluation of the equipment and facilities for the firing of refuse-derived fuel and the assessment of the gaseous aqueous, and solid waste discharges associated with firing refuse-derived fuel during the St. Louis-Union Electric Refuse Fuel Project.

EPA-600/7-77-040, NTIS-PB270-219

Title: European Developments in the Recovery of Energy and Materials from Municipal Solid Waste
Author(s): W. David Conn
Sponsoring Agency: Municipal Environmental Research Laboratory, Cincinnati, OH
Project Officer: C. A. Clemons
No. Pages: 53
Performing Organization: University of California

Abstract: This is the report of a study which set out to determine whether priorities in western Europe with respect to energy and materials recovery from municipal solid waste are the same as those in the United States, which include (a) the use of refuse as a supplementary fuel, (b) pryolysis, and (c) resource recovery.

EPA-600/7-77-062, NTIS-PB272-759

Title: Development Status and Environmental Hazards of Several Advanced Energy Systems
Author(s): Morris Penny, Sidney Bourgeois
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: William Cain
No. Pages: 109
Performing Organization: Lockheed-Huntsville Research & Engineering Center

Abstract: The report gives a review of the development status of several advanced energy concepts and discusses the primary environmental hazards of each system. Systems reviewed include potential new sources of energy and improved energy conversion.

EPA-600/7-77-085, NTIS-PB273-108

Title: Environmental Impact Statement for a Hypothetical 1000 MW_e Photovoltaic Solar-Electric Plant
Author(s): D. Richard Sears, Donald V. Merrifield, Morris M. Penny, W. Glen Bradley
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: R. P. Hartley
No. Pages: 206
Performing Organization: Lockheed Missiles & Space Company, Inc.

Abstract: This draft EIS was prepared to assist the EPA in strengthening its inputs to environmental impact statements in the area of new energy developments. The document has no legal significance, and the "proposed action" is entirely hypothetical.

EPA-600/7-77-086, NTIS-PB272-352

Title: Preliminary Environmental Assessment of Solar Energy Systems
Author(s): D. R. Sears, P. O. McCormick
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: R. P. Hartley
No. Pages: 131
Performing Organization: Lockheed Missiles & Space Company, Inc.

Abstract: Central station solar-electric plants and flat plate space heating installations are environmentally superior to their respective conventional alternatives because they produce little or no air and water pollution. Land area required for central station solar plants will be large, but it is not as destructive or irreversible as with coal stripping.

EPA-600/7-77-087, NTIS-PB272-604

Title: Assessment of Large-Scale Photovoltaic Materials Production
Author(s): M. G. Gandel, P. A. Dillard, D. R. Sears, S. M. Ko, S. V. Bourgeois
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. P. Hartley
No. Pages: 125
Performing Organization: Lockheed Missiles & Space Company, Inc.

Abstract: Solar cell production at rates needed to supply continuously 1% of projected U.S. power requirements in the year 2000 is examined. Si and CdS are followed from raw material extraction to finished cell; GaAs is reviewed less thoroughly.

EPA-600/7-77-091, NTIS-PB272-646

Title: Environmental Assessment of Waste-To-Energy Processes: Source Assessment Document
Author(s): K. P. Ananth, L. J. Shannon, M. P. Schrag
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: Harry M. Freeman No. Pages: 78
Performing Organization: Midwest Research Institute

Abstract: This source assessment document is the first publication on the subject program and it is intended to present what is currently known on emissions and emission control techniques in waste-to-energy conversion systems.

EPA-600/7-77-092, NTIS-

Title: Geothermal Industry Position Paper: EPA Regulatory Options and R&D Needs
Author(s): Gregory J. D'Alessio
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D. C.
Project Officer: Gregory J. D'Alessio No. Pages: 97
Performing Organization: Office of Energy, Minerals, and Industry

Abstract: The paper discusses the regulatory approaches and the potential problems that geothermal energy may present in the areas of air quality, water quality, and other impacts.

EPA-600/7-77-108, NTIS-PB277-438/AS

Title: Study of a Thermal Aerosol Oil Burner
Author(s): J. E. Janssen, J. J. Glatzel, E. R. Wabasha, U. Bonne
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 50
Performing Organization: Honeywell, Inc.

Abstract: The report gives results of a study of a thermal aerosol oil burner, aimed at counteracting the poor atomization and excess burner capacity that are known to reduce seasonal efficiency and contribute to excess emissions in residential oil burners.

EPA-600/7-76-022, NTIS-PB263-453/AS

Title: Survey of Emissions Control and Combustion Equipment Data In Industrial Process Heating
Author(s): Peter A. Ketels, John D. Nesbitt, R. Don Oberle
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. H. Wasser No. Pages: 132
Performing Organization: Institute of Gas Technology

Abstract: The report gives results of investigations of the interaction between present and potential energy conservation measures and emission programs in a number of select industries. Where energy conservation goals conflicted with emission control goals, the problems were assessed.

EPA-600/2-76-148, NTIS-

Title: Fuel and Energy Production by Bioconversion of Waste Materials - State-of-the-Art
Author(s): Sylvia A. Ware
Sponsoring Agency: Municipal Environmental Research Laboratory, Cincinnati, OH
Project Officer: Leo Weitzman No. Pages: 75
Performing Organization: Ebon Research Systems

Abstract: This report is a state-of-the-art summary of biological processes for converting waste cellulosic materials (agricultural, municipal and lumbering wastes) to fuels. It indicates the locations and quantities of suitable wastes and discusses the status of the current processing schemes.

EPA-600/2-76-149, NTIS-PB257-182/AS

Title: Environmental Aspects of Fuel Conversion Technology, II (December 1975, Hollywood, Florida)
Author(s): Franklin A. Ayer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes No. Pages: 500
Performing Organization: Research Triangle Institute

Abstract: The report covers EPA's second symposium on the environmental aspects of fuel conversion technology. Its main objective was to review and discuss environmentally related information in the field of fuel conversion technology.

EPA-600/2-76-212, NTIS-PB271-680/AS

Title: Symposium on Environment and Energy Conservation (November 1975, Denver, Colorado)
Author(s): Franklin A. Ayer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Walter B. Steen No. Pages: 560
Performing Organization: Research Triangle Institute

Abstract: The principal objective of this symposium was to identify the environmental benefits and threats of alternative energy conservation systems and to compare the environmental impacts of energy conservation strategies.

Flue Gas Sulfur Oxide Control

This program develops and evaluates alternative technologies for the removal of sulfur oxide emissions from flue gas at electricity generating plants and industrial boilers. The aim of the program is to develop technical data on which EPA may establish emission standards for sulfur-emitting sources. Efforts are underway to evaluate existing sulfur oxides removal installations, to assess other impacts of flue gas desulfurization technology, and to assess the applicability of FGD technology to industrial boilers and other sulfur oxide sources.

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EPA-600/7-79-046, NTIS-PB293-163

Title: Disposal of By-Products from Non-Regenerable Flue Gas Desulfurization Systems: Final Report
Author(s): J. Rossoff, R. C. Rossi, R. B. Fling, W. M. Graven and P. P Leo
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 185
Performing Organization: The Aerospace Corporation

Abstract: The report gives results of a 4-year study to determine environmentally sound methods for disposing of wastes from nonregenerable flue gas desulfurization (FGD) systems.

EPA-600/7-78-010, NTIS-PB278-722/AS

Title: Project Manual for Full-Scale Dual-Alkali Demonstration at Louisville Gas and Electric Co.--Preliminary Design and Cost Estimate
Author(s): R. P. VanNess, R. C. Somers, T. Frank, J. M. Lysaght, I. L. Jashnani, R. R. Lunt, C. R. LaMantia
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 100
Performing Organization: Louisville Gas and Electric Company

Abstract: The report is the project manual for the dual-alkali system, designed by Combustion Equipment Associates, Inc./Arthur D. Little, Inc. and being installed to control SO_2 emissions from Louisville Gas and Electric Company's Cane Run Unit No. 6 boiler.

EPA-600/7-78-010a, NTIS-PB281-530/AS

Title: Executive Summary for Full-Scale Dual-Alkali Demonstration at Louisville Gas and Electric Co.--Preliminary Design and Cost Estimate
Author(s): R. P. VanNess, R. C. Somers, T. Frank, J. M. Lysaght, I. L. Jashnani, R. R. Lunt, C. R. LaMantia
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 20
Performing Organization: Lousiville Gas and Electric Company

Abstract: The report is the executive summary for the preliminary design of the dual-alkali system, designed by Combustion Equipment Associates, Inc/Arthur D. Little, Inc. and being installed to control SO_2 emissions from Louisville Gas and Electric Company's Cane Run Unit No. 6 boiler.

EPA-600/7-78-023a, NTIS-PB281-391/AS

Title: Economics of Disposal of Lime/Limestone Scrubbing Wastes: Untreated and Chemically Treated Wastes
Author(s): J. W. Barrier, H. L. Faucett, L. J. Henson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 400
Performing Organization: Tennessee Valley Authority

Abstract: The report gives results of a detailed, comparative economic evaluation of four alternatives available to the utility industry for the disposal of wastes from flue gas desulfurization using limestone or lime slurry scrubbing.

EPA-600/7-78-024, NTIS-PB282-246/AS

Title: Disposal of Flue Gas Cleaning Wastes: EPA Shawnee Field Evaluation--Second Annual Report
Author(s): R. B. Fling, W. M. Graven, P. P. Leo, J. Rossoff
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 200
Performing Organization: The Aerospace Corporation

Abstract: The report describes progress made during the first two years of a field evaluation of treated and untreated ponding techniques for the disposal of power plant flue gas desulfurization sludges.

EPA-600/7-78-030a, NTIS-PB280-253/AS

Title: Flue Gas Desulfurization Systems: Design and Operating Considerations Volume I. Exective Summary
Author(s): C. C. Leivo
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. E. Williams No. Pages: 26
Performing Organization: Bechtel Corporation

Abstract: The report describes flue gas desulfurization (FGD) systems and the design and operating parameters that are monitored to ensure proper operation. It explains how these parameters are varied to accommodate changing boiler loads and fuel characteristics, and describes the control of parameters to prevent such problems as scale buildup.

EPA-600/7-78-030b, NTIS-PB280-254/AS

Title: Flue Gas Desulfurization Systems: Design and Operating Considerations Volume II. Technical Report
Author(s): C. C. Leivo
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. E. Williams, K. R. Durkee No. Pages: 201
Performing Organization: Bechtel Corporation

Abstract: The report describes flue gas desulfurization (FGD) systems and the design and operating parameters that are monitored to ensure proper operation.

EPA-600/7-78-031a, NTIS-PB281-366/AS

Title: The Effect of Flue Gas Desulfurization Availability on Electric Utilities Volume I. Executive Summary
Author(s): R. D. Delleney
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. E. Williams, K. R. Durkee No. Pages: 38
Performing Organization: Radian Corporation

Abstract: The report gives results of an analysis of the effect of the availability of a flue gas desulfurization system on the ability of an individual power plant to generate electricity at its rated capacity.

EPA-600/7-78-031b, NTIS-PB281-367/AS

Title: The Effect of Flue Gas Desulfurization Availability on Electric Utilities Volume II. Technical Report
Author(s): R. D. Delleney
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. E. Williams, K. R. Durkee No. Pages: 119
Performing Organization: Radian Corporation

Abstract: The report gives results of an analysis of the effect of the availability of a flue gas desulfurization system on the ability of an individual power plant to generate electricity at its rated capacity.

EPA-600/7-78-032a, NTIS-PB284-045/AS

Title: Flue Gas Desulfurization System Capabilities for Coal-fired Steam Generators Volume I. Executive Summary
Author(s): T. Devitt, R. Gerstle, L. Gibbs, S. Hartman, R. Klier
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. E. Williams, K. R. Durkee No. Pages: 39
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report discusses the availability of technology for reducing SO_2 emissions from coal-fired steam generators using flue gas desulfurization (FGD) systems.

EPA-600/7-78-032b, NTIS-PB279-417/AS

Title: Flue Gas Desulfurization System Capabilities for Coal-Fired Steam Generators Volume II. Technical Report
Author(s): T. Devitt, R. Gerstle, L. Gibbs, S. Hartman, R. Klier
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. E. Williams, K. R. Durkee No. Pages: 512
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report discusses the availability of technology for reducing SO_2 emissions from coal-fired steam generators using flue gas desulfurization (FGD) systems.

EPA-600/7-78-033, NTIS-PB279-080/AS

Title: Effects of Alternative New Source Performance Standards on Flue Gas Desulfurization System Supply and Demand
Author(s): V. P. Patel, L. Gibbs
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. E. Williams, K. R. Durkee No. Pages: 112
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report discusses the capabilities of equipment vendors to supply and install the quantity of flue gas desulfurization systems required to meet alternative standards for coal-fired steam generators.

EPA-600/7-78-044a, NTIS-PB281-099/AS

Title: Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Solid Waste Impact (Volume I. Executive Summary)
Author(s): P. P. Leo, J. Rossoff
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 60
Performing Organization: The Aerospace Corporation

Abstract: The study assesses the technological, economic, and environmental impacts, projected to 1998, of the increased solid wastes resulting from the application of various more-stringent controls as well as of the current New Source Performance Standards (NSPS) for SO_2 emissions from coal-fired steam-electric generators.

EPA-600/7-78-044b, NTIS-PB281-100/AS

Title: Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Solid Waste Impact (Volume II. Technical Discussion)
Author(s): P. P. Leo, J. Rossoff
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 200
Performing Organization: The Aerospace Corporation

Abstract: The study assesses the technological, economic, and environmental impacts, projected to 1998, of the increased solid wastes resulting from the application of various more-stringent controls as well as of the current New Source Performance Standards (NSPS) for SO_2 emissions from coal-fired steam-electric generators.

EPA-600/7-78-045a, NTIS-PB279-635/AS

Title: Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Water Pollution Impact (Volume I. Executive Summary)
Author(s): R. L. Sugarek, T. G. Sipes
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 60
Performing Organization: Radian Corporation

Abstract: The report gives results of one task in a comprehensive program to review the New Source Performance Standards (NSPS) for SO_2 emissions from coal-fired steam-electric generating plants.

EPA-600/7-78-045b, NTIS-PB279-636/AS

Title: Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Water Pollution Impact (Volume II. Technical Discussion)
Author(s): R. L. Sugarek, T. G. Sipes
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 260
Performing Organization: Radian Corporation

Abstract: The report gives results of one task in a comprehensive program to review the New Source Performance Standards (NSPS) for SO_2 emissions from coal-fired steam-electric generating plants.

EPA-600/7-78-048a, NTIS-PB281-104/AS

Title: Survey of Flue Gas Desulfurization Systems: Cholla Station, Arizona Public Service Co.
Author(s): Bernard A. Laseke, Jr.
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 75
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report gives results of a second survey of the flue gas desulfurization (FGD) system on Unit 1 of Arizona Public Service Company's Cholla Station.

EPA-600/7-78-048b, NTIS-PB281-105/AS

Title: Survey of Flue Gas Desulfurization Systems: Will County Station, Commonwealth Edison Co.
Author(s): Bernard A. Laseke, Jr.
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 80
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report gives results of a second survey of the flue gas desulfurization (FGD) system on Unit 1 of Commonwealth Edison Company's Will County Station.

EPA-600/7-78-048c, NTIS-PB281-106/AS

Title: Survey of Flue Gas Desulfurization Systems: St. Clair Station, Detroit Edison Company
Author(s): Bernard A. Laseke, Jr.
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 72
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report gives results of a second survey of the flue gas desulfurization (FGD) system on Unit 6 of Detroit Edison Company's St. Clair Station.

EPA-600/7-78-048d, NTIS-PB281-107/AS

Title: Survey of Flue Gas Desulfurization Systems: La Cygne Station, Kansas City Power and Light Co.
Author(s): Bernard A. Laseke, Jr.
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 90
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report gives results of a second survey of the flue gas desulfurization (FGD) system on Unit 1 of Kansas City Power and Light Co.'s La Cygne Station.

EPA-600/7-78-048e, NTIS-PB279-543/AS

Title: Survey of Flue Gas Desulfurization Systems: Green River Station, Kentucky Utilities
Author(s): Bernard A. Laseke, Jr.
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 60
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report gives results of a survey of the flue gas desulfurization (FGD) system retrofitted to Boilers 1, 2, and 3 at the Green River Station of Kentucky Utilities.

EPA-600/7-78-051a, NTIS-PB279-011/AS

Title: EPA Utility FGD Survey: December 1977 - January 1978
Author(s): Bernard A. Laseke, Jr.
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 400
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report presents a survey of utility flue gas desulfurization (FGD) systems in the U.S. It summarizes information contributed by the utility industry, process suppliers, regulatory agencies, and consulting engineering firms.

EPA-600/7-78-051b, NTIS-PB287-214/AS

Title: EPA Utility FGD Survey: February-March 1978
Author(s): N. Gregory, G. Isaacs, B. Laseke, M. Melia, A. Patkar, M. Smith
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 60
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report is an updated supplement to EPA-600/7-78-051a and should be used in conjunction with it. It presents a survey of utility flue gas desulfurization (FGD) systems in the U.S.

EPA-600/7-78-051c, NTIS-PB286-707

Title: EPA Utility FGD Survey: April-May 1978
Author(s): B. Laseke, M. Melia, M. Smith, W. Fischer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 100
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report is an updated supplement to EPA-600/78-051a and should be used in conjunction with it. It presents a survey of utility flue gas desulfurization (FGD) systems in the U.S.

EPA-600/7-78-051d, NTIS-PB288-299

Title: EPA Utility FGD Survey: June-July 1978
Author(s): M. Melia, M. Smith, W. Fischer, B. Laseke
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: N. Kaplan, J. C. Herlihy No. Pages: 136
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report is an updated supplement to EPA-600/7-78-051a and should be used in conjunction with it. It presents a survey of utility flue gas desulfurization (FGD) systems in the U.S.

EPA-600/7-78-052a, NTIS-PB279-214/AS

Title: EPA Industrial Boiler FGD Survey: First Quarter 1978
Author(s): J. Tuttle, A. Patkar, N. Gregory
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. David Mobley No. Pages: 200
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report presents detailed technical information concerning application of flue gas desulfurization (FGD) systems to industrial boilers.

EPA-600/7-78-052b, NTIS-

Title: EPA Industrial Boiler FGD Survey: Second Quarter 1978
Author(s): J. Tuttle, A. Patkar, N. Gregory, M. Eckstein
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. Michael McAdams No. Pages: 115
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report presents detailed technical information concerning application of flue gas desulfurization (FGD) systems to industrial boilers.

EPA-600/7-78-052c, NTIS-PB288-204/AS

Title: EPA Industrial Boiler FGD Survey: Third Quarter 1978
Author(s): J. Tuttle, A. Patkar, D. Welch, M. Hessling, M. Eckstein
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. Michael McAdams No. Pages: 173
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report presents detailed technical information concerning application of flue gas desulfurization (FGD) systems to industrial boilers.

EPA-600/7-78-058a, NTIS-PB282-090/AS

Title: Symposium on Flue Gas Desulfurization--Hollywood, FL, November 1977 (Volume I)
Author(s): Franklin A. Ayer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 440
Performing Organization: Research Triangle Institute

Abstract: The proceedings document presentations made during the symposium, which dealt with the status of flue gas desulfurization technology in the United States and abroad.

EPA-600/7-78-058b, NTIS-PB282-091/AS

Title: Symposium on Flue Gas Desulfurization--Hollywood, FL, November 1977 (Volume II)
Author(s): Franklin A. Ayer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 630
Performing Organization: Research Triangle Institute

Abstract: The proceedings document presentations made during the symposium, which dealt with the status of flue gas desulfurization technology in the United States and abroad.

EPA-600/7-78-089, NTIS-PB285-880/AS

Title: Coal Desulfurization Using Microwave Energy
Author(s): Peter Zavitsanos
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Lewis D. Tamny No. Pages: 60
Performing Organization: General Electric Company

Abstract: The report describes the use of microwave energy and NaOH to remove pyritic and organic sulfur from several U.S. coals. Exposure times on the order of 1 minute at 1 atmosphere of inert gas can remove up to 85% of the sulfur with little or no loss in heating value of the coal.

EPA-600/7-78-115, NTIS-PB286-611/AS

Title: EPA Evaluation of Bahco Industrial Boiler Scrubber System at Rickenbacker AFB
Author(s): E. L. Biedell, R. J. Ferb, G. W. Malamud, C. D. Ruff, N. J. Stevens
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: John E. Williams No. Pages: 175
Performing Organization: Research-Cottrell, Inc.

Abstract: The report gives results of an 18-month evaluation of the R-C/Bahco combined flue gas desulfurization and particulate removal system on a stoker-fired industrial boiler at Rickenbacker AFB, Ohio.

EPA-600/7-78-155a, NTIS-PB285-854

Title: Review of New Source Performance Standards for Coal-Fired Utility Boilers, Volume 1: Emissions and Non-Air Quality Environmental Impacts
Author(s):
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: P. Schwengals No. Pages: 130
Performing Organization: Energy and Environmental Engineering Division Teknekron, Inc.

Abstract: This two volume report summarizes a study of the projected effects of several different revisions to the current New Source Performance Standard (NSPS) for sulfur dioxide (SO_2) emissions from coal-fired utility power boilers. Volume 1 discusses air emissions, solid wastes, water consumption, and energy requirements.

EPA-600/7-78-155b, NTIS-PB285-855

Title: Review of New Source Performance Standards for Coal-Fired Utility Boilers, Volume II: Economic and Financial Impacts
Author(s):
Sponsoring Agency: Office of Energy, Minerals, and Industry, Washington, D.C.
Project Officer: P. Schwengals No. Pages: 170
Performing Organization: Energy and Environmental Engineering Division Teknekron, Inc.

Abstract: This two volume report summarizes a study of the projected effects of several different revisions to the current New Source Performance Standard (NSPS) for sulfur dioxide (SO_2) emissions from coal-fired utility power boilers. Volume II discusses economic and financial effects, including projections of pollution control costs and changes in electricity prices.

EPA-600/7-78-163, NTIS-286-971

Title: Effect of SO_2 Emission Requirements on Fluidized-Bed Combustion Systems: Preliminary Technical/Economic Assessment
Author(s): R. A. Newby, N. H. Ulerich, E. P. O'Neill, D. F. Ciliberti, D. L. Keairns
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Henschel No. Pages: 125
Performing Organization: Westinghouse Research and Development Center

Abstract: The report gives results of a preliminary technical/economic evaluation to project the impact of SO_2 control requirements (up to 90% control) on the capital and energy costs of atmospheric-pressure and pressurized fluidized-bed combustion (AFBC and PFBC) power plants.

EPA-600/7-78-176, NTIS-PB286-646

Title: Characterization of Carbide Lime to Identify Sulfite Oxidation Inhibitors
Author(s): L. J. Holcombe, K. W. Luke
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Julian W. Jones No. Pages: 76
Performing Organization: Radian Corporation

Abstract: The report gives results of a study of carbide lime--a by-product of acetylene manufacture, primarily calcium hydroxide--used in a flue gas desulfurization (FGD) system at Louisville Gas and Electric (LGE).

EPA-600/2-77-149, NTIS-PB272-304/AS

Title: Ammonia Absorption/Ammonium Bisulfate Regeneration Pilot Plant for Flue Gas Desulfurization
Author(s): P. C. Williamson, E. J. Puschaver
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Wade H. Ponder No. Pages: 272
Performing Organization: Tennessee Valley Authority

Abstract: The report gives results of a pilot-plant study of the ammonia absorption/ammonium bisulfate regeneration process for removing SO_2 from the stack gas of coal-fired power plants.

EPA-600/2-77-165, NTIS-PB272-952/AS

Title: Magnesia FGD Process Testing on a Coal-Fired Power Plant
Author(s): Dianne Summerer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: C. J. Chatlynne No. Pages: 261
Performing Organization: York Research Corporation

Abstract: The report gives results of a field measurement program to determine the operability and reliability of the Chemico magnesium oxide venturi scrubber operating at Potomac Electric Power Company's Dickerson Generating Station, Frederick, MD.

EPA-600/7-77-014, NTIS-PB269-885

Title: Demonstration of Wellman-Lord/Allied Chemical FGD Technology: Boiler Operating Characteristics
Author(s): R. C. Adams, T. E. Eggleston, J. L. Haslbeck, R. C. Jordan, Ellen Pulaski
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. H. Ponder No. Pages: 250
Performing Organization: TRW, Inc.

Abstract: The report gives results of an intensive examination and characterization of a coal-fired boiler prior to retrofit of a full scale flue gas desulfurization (FGD) unit employing the Wellman-Lord/Allied process. The tests were performed on Boiler No. 11 of Northern Indiana Public Service Company's Mitchell Power Station.

EPA-600/7-77-018, NTIS-PB266-228/AS

Title: Magnesia Scrubbing Applied to a Coal-Fired Power Plant
Author(s): George Koehler
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: C. J. Chatlynne No. Pages: 225
Performing Organization: Chemico Air Pollution Control Company

Abstract: The report gives results of a full-size demonstration of the magnesia wet-scrubbing system for flue gas desulfurization (FGD) on a coal-fired utility boiler. The FGD system was able to remove 90% of the inlet SO_2 over 2,800 hours of operation logged at the generating station.

EPA-600/7-77-031, NTIS-PB271-008/AS

Title: High-Temperature Desulfurization of Low-Btu Gas
Author(s): G. P. Curran, B. J. Koch, B. Pasek, M. Pell, E. Gorin
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: S. L. Rakes
Performing Organization: Consolidation Coal Company

Abstract: The report describes and gives results of economic studies of a process for desulfurizing low-Btu fuel gas. The gas is intended for use as fuel to gas turbines in combined-cycle power generation.

EPA-600/7-77-050a, NTIS-PB269-904

Title: Final Report: Dual Alkali Test and Evaluation Program; Volume I. Executive Summary
Author(s): C. R. LaMantia, R. R. Lunt, J. E. Oberholtzer, E. L. Field, J. R. Valentine
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 50
Performing Organization: Arthur D. Little, Inc.

Abstract: Volume I of the report is an executive summary of the results of a three-task program to investigate, characterize, and evaluate the basic process chemistry and the various operating modes of sodium-based dual alkali scrubbing processes. The tasks were: 1, laboratory studies at both Arthur D. Little, Inc. (ADL) and IERL-RTP; 2, pilot plant operations in a 1200 scfm system at ADL; and 3, a prototype test program on a 20 MW dual alkali system at Plant Scholz.

EPA-600/7-77-050b, NTIS-PB272-770/AS

Title: Final Report: Dual Alkali Test and Evaluation Program; Volume II. Laboratory and Pilot Plant Programs
Author(s): C. R. LaMantia, R. R. Lunt, J. E. Oberholtzer, E. L. Field, J. R. Valentine
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 300
Performing Organization: Arthur D. Little, Inc.

Abstract: Volume II of the report covers Tasks I and II of a three-task program to investigate, characterize, and evaluate the basic process chemistry and the various operating modes of sodium-based dual alkali scrubbing processes.

EPA-600/7-77-050c, NTIS-PB272-109/AS

Title: Final Report: Dual Alkali Test and Evaluation Program; Volume III. Prototype Test Program-Plant Scholtz
Author(s): C. R. LaMantia, R. R. Lunt, J. E. Oberholtzer, E. L. Field, J. R. Valentine
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 200
Performing Organization: Arthur D. Little, Inc.

Abstract: Volume III of the report covers Task III of a three-task program to investigate, characterize, and evaluate the basic process chemistry and the various operating modes of sodium-based dual alkali scrubbing processes.

EPA-600/7-77-074, NTIS-PB272-111/AS

Title: Laboratory Study of Limestone Regeneration in Dual Alkali Systems
Author(s): J. E. Oberholtzer, L. N. Davidson, R. R. Lunt
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 35
Performing Organization: Arthur D. Little, Inc.

Abstract: The report describes a series of open-and closed-loop laboratory bench scale experiments which were carried out to study parameters which affect the reaction of limestone with dual alkali flue gas desulfurization system process liquors.

EPA-600/7-77-075, NTIS-PB270-572/AS

Title: Flue Gas Desulfurization Using Fly Ash Alkali Derived from Western Coals
Author(s): H. M. Ness, E. A. Sondreal, F. Y. Murad, K. S. Vig
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 78
Performing Organization: U. S. Energy Research and Development Administration

Abstract: The report gives results of tests investigating the use of Western coal fly ash for scrubbing SO_2 from powerplant flue gas, on a 130-scfm pilot scrubber at the Grand Forks (ND) Energy Research Center and on a 5,000-acfm pilot scrubber at the Milton R. Young Generating Station (Center, ND).

EPA-600/7-77-103a, NTIS-PB272-986/AS

Title: SO_2 Abatement for Stationary Sources in Japan
Author(s): J. Ando, B. A. Laseke
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. David Mobley No. Pages: 185
Performing Organization: PEDCo Environmental, Inc.

Abstract: The report describes the status of SO_2 abatement technology for stationary sources in Japan as of June 1976. It presents the current status of desulfurization technologies including hydrodesulfurization of oil, decomposition of residual oil, gasification of coal and oil, and flue gas desulfurization (FGD).

EPA-600/7-77-105, NTIS-PB274-544/AS

Title: EPA Alkali Scrubbing Test Facility: Advanced Program, Third Progress Report
Author(s): Harlan N. Head
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: John E. Williams No. Pages: 700
Performing Organization: Bechtel Corporation

Abstract: The report gives results of advanced testing from February through November 1976 of 30,000 acfm (10 MW equivalent)lime/limestone wet scrubbers for SO_2 and particulate removal at TVA's Shawnee Power Station.

EPA-600/7-77-106, NTIS-PB278-373/AS

Title: Effective Control of Secondary Water Pollution from Flue Gas Desulfurization Systems
Author(s): Lanny D. Weimer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Frederick A. Roberts No. Pages: 60
Performing Organization: Resources Conservation Company

Abstract: The report describes tests to demonstrate the feasibility of using a vertical-tube, falling-film, vapor-compression evaporator to concentrate waste water from a flue gas desulfurization (FGD) process.

EPA-600/7-77-109, NTIS-PB277-086/AS

Title: Precipitation Chemistry of Magnesium Sulfite Hydrates in Magnesium Oxide Scrubbing
Author(s): Philip S. Lowell, Frank B. Meserole, Terry B. Parsons
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Charles J. Chatlynne No. Pages: 373
Performing Organization: Radian Corporation

Abstract: The report gives results of laboratory studies defining the precipitation chemistry of $MgSO_3$ hydrates. The results apply to the design of Mg-based scrubbing processes for SO_2 removal from combustion flue gas.

EPA-600/7-77-116, NTIS-PB276-520/AS

Title: Century Industrial Products FRP-100 Wet Scrubber Evaluation
Author(s): D. S. Ensor, R. G. Hooper
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 71
Performing Organization: Meteorology Research, Inc.

Abstract: The report gives results of a field test evaluation of the performance of the Century Industrial Products FRP-100 wet scrubber installed on a lightweight aggregate kiln.

EPA-600/2-76-013a, NTIS-PB250-585/AS

Title: SO_2 Abatement for Stationary Sources in Japan
Author(s): Jumpei Ando, Gerald A. Isaacs
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: N. Kaplan No. Pages: 180
Performing Organization: PEDCo

Abstract: The report describes the status of desulfurization technology in Japan up to January 1975, with emphasis on the recovery of SO_2 in lime/limestone based processes. It discusses the current status of desulfurization technologies, including hydrodesulfurization of oil, decomposition of residual oil, gasification of coal and oil and flue gas desulfurization (FGD).

EPA-600/2-76-130, NTIS-PB254-168/AS

Title: Reductant Gases for Flue Gas Desulfurization Systems
Author(s): D. W. Hissong, K. S. Murthy, A. W. Lemmon, Jr.
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: C. J. Chatlynne No. Pages: 236
Performing Organization: Battelle-Columbus Laboratories

Abstract: The report gives results of a study of the use of coal or residual-oil gasification to produce a hydrogen/carbon monoxide-rich gas for use as a reductant for regenerable flue gas desulfurization (FGD) processes.

EPA-600/2-76-136a, NTIS-PB255-317/AS

Title: Symposium on Flue Gas Desulfurization--New Orleans, March 1976; Volume I
Author(s): R. D. Stern, W. H. Ponder, R. C. Christman
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. D. Stern, W. H. Ponder No. Pages: 575
Performing Organization: Miscellaneous

Abstract: The proceedings document the presentations made during the symposium, which dealt with the status of flue gas desulfurization technology in the United States and abroad. Subjects considered included: regenerable, non-regenerable, and advance processes; process costs; and by-product disposal, utilization, and marketing.

EPA-600/2-76-136b, NTIS-PB262-722/AS

Title: Symposium on Flue Gas Desulfurization--New Orleans, March 1976; Volume II
Author(s): R. D. Stern, W. H. Ponder, R. C. Christman
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. D. Stern, W. H. Ponder No. Pages: 615
Performing Organization: Miscellaneous

Abstract: The proceedings document the presentations made during the symposium, which dealt with the status of flue gas desulfurization technology in the United States and abroad. Subjects considered included: regenerable, non-regenerable, and advance processes; process costs; and by-product disposal, utilization, and marketing.

EPA-600/2-76-143a, NTIS-PB261-128/AS

Title: Meyers Process Development for Chemical Desulfurization of Coal, Volume I
Author(s): E. P. Koutsoukos, M. L. Kraft, R. A. Orsini, R. A. Meyers, M. J. Santy, L. J. Van Nice
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Lewis D. Tamny No. Pages: 280
Performing Organization: TRW Systems Group

Abstract: The report gives results of bench-scale development of the Meyers Process (for chemical removal of sulfur from coal) for desulfurization of both fine and coarse coal. More than 90% of the pyrite was removed from run-of-mine (ROM) fine coal and clean coarse coal, and more than 80% of the pyrite from ROM coarse coal.

EPA-600/2-76-143b, NTIS-PB261-129/AS

Title: Meyers Process Development for Chemical Desulfurization of Coal, Volume II--Appendices
Author(s): E. P. Koutsoukos, M. L. Kraft, R. A. Orsini, R. A. Meyers, M. J. Santy, L. J. Van Nice
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Lewis D. Tamny No. Pages: 114
Performing Organization: TRW Systems Group

Abstract: The report gives results of bench-scale development of the Meyers Process (for chemical removal of sulfur from coal) for desulfurization of both fine and coarse coal. More than 90% of the pyrite was removed from run-of-mine (ROM) fine coal and clean coarse coal, and more than 80% of the pyrite from ROM coarse coal.

EPA-600/2-76-152a, NTIS-PB256-320/AS

Title: Proceedings of the Stationary Source Combustion Symposium; Volume I--Fundamental Research
Author(s): Not identified
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. E. Hall No. Pages: 480
Performing Organization:

Abstract: The symposium dealt with subjects related both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency. Volume I--Fundamental Research.

EPA-600/2-76-152b, NTIS-PB256-321/AS

Title: Proceedings of the Stationary Source Combustion Symposium; Volume II--Fuels and Process Research and Development
Author(s): Not identified
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. E. Hall No. Pages: 423
Performing Organization:

Abstract: The symposium dealt with subjects related both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency. Volume II--Fuels and Process Research and Development.

EPA-600/2-76-152c, NTIS-PB257-146/AS

Title: Proceedings of the Stationary Source Combustion Symposium; Volume III--Field Testing and Surveys
Author(s): Not identified
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. E. Hall No. Pages: 470
Performing Organization:

Abstract: The symposium dealt with subjects related both to developing improved combustion technology for the reduction of air pollutant emissions from stationary sources, and to improving equipment efficiency. Volume III--Field Testing and Surveys.

EPA-600/7-76-030, NTIS-PB262-857/AS

Title: Feasibility of Producing Elemental Sulfur from Magnesium Sulfite
Author(s): Philip S. Lowell, W. E. Corbett, G. D. Brown, K. A. Wilde
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: C. J. Chatlynne No. Pages: 211
Performing Organization: Radian Corporation

Abstract: The report gives results of a study to extend potential applications of MgO flue gas desulfurization processes by allowing the sulfur to be recovered as elemental sulfur as well as sulfuric acid. The study considered the feasibility of combining the exothermic SO_2 reduction reaction with the endothermic $MgSO_3$ calcination.

Nitrogen Oxide Control

The purpose of this program is to develop the best practicable combustion technology for the control of NO_x emissions from the leading categories of stationary sources and diesel engines. Stationary source categories include utility boilers, commercial/industrial boilers, residental heating systems, stationary engines, and advanced combustion processes. Advanced combustion processes such as advanced coal burners and coal burner systems are being studied and fundamental engineering and analytical support studies are also being conducted to evaluate the potential of these advanced methods for NO_x emission control and energy conservation. The research on controlled combustion also include fuel conditioning for sulfur oxide removal.

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EPA-600/7-79-015b, NTIS-

Title: Application of Combustion Modifications to Industrial Combustion Equipment (Data Supplement A)
Author(s): K. T. Fisher, H. J. Buening, W. A. Carter, P. K. Engel, S. C. Hunter, R. J. Tidona
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall | No. Pages: 500
Performing Organization: KVB, Inc.

Abstract: The supplement provides raw data from a study of the effects of combustion modifications on air pollutant emissions from a variety of industrial combustion equipment.

EPA-600/7-79-037a, NTIS-

Title: Design Optimization and Field Verification of an Integrated Residential Furnace--Phase I
Author(s): A. S. Okuda, L. P. Combs
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: G. Blair Martin | No. Pages: 152
Performing Organization: Rockwell International

Abstract: The report describes Phase I of a two-phase investigation to: (1) further optimize the design of a prototype low-emission residential furnace that was derived from earlier EPA-funded studies; and (2) obtain field verification of its emission and performance characteristics.

EPA-600/7-79-041a, NTIS-

Title: Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site B
Author(s): J. E. Gabrielson, P. L. Langsjoen, T. C. Kosvic
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall | No. Pages: 112
Performing Organization: KVB, Inc.

Abstract: The report gives results of field measurements made on a 200,000 lb/hr spreader stoker boiler. The effect of various parameters on boiler emissions and efficiency was studied.

EPA-600/7-79-041b, NTIS-

Title: Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site B (Data Supplement)
Author(s): J. E. Gabrielson, P. L. Langsjoen, T. C. Kosvic
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall **No. Pages**: 359
Performing Organization: KVB, Inc.

Abstract: The data supplement is a compilation of test data presented in greater detail than was practical in the final technical report. It provides the necessary details to other researchers who are interested in performing their own analysis.

EPA-600/7-79-079, NTIS-

Title: Applicability of the Thermal DeNO_x Process to Coal-Fired Utility Boilers
Author(s): G. M. Varga, Jr., M. E. Tomsho, B. H. Ruterbories, G. J. Smith, W. Bartok
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: David G. Lachapelle **No. Pages**: 188
Performing Organization: Exxon Research and Engineering Company

Abstract: The report gives a projection of the performance and cost of the Exxon Thermal DeNO_x Process applied to coal-fired utility boilers. Eight units were selected, representing different boiler manufacturers, sizes, firing methods, and coal types.

EPA-600/2-78-217, NTIS-PB289-878

Title: Combustion Modification Effects on NOx Emissions from Gas-, Oil-, and Coal-Fired Utility Boilers
Author(s): Owen W. Dykema
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall **No. Pages**: 94
Performing Organization: The Aerospace Corporation

Abstract: The report represents the conclusion of 4 years of analysis of large quantities of emissions, operating conditions, and boiler configuration data from full-scale multiple-burner, electric-generating boilers firing natural gas, oil, and coal fuels.

EPA-600/7-78-036a, NTIS-PB281-078/AS

Title: Control of Utility Boiler and Gas Turbine Pollutant Emissions by Combustion Modification--Phase I
Author(s): A. R. Crawford, E. H. Manny, W. Bartok
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 150
Performing Organization: Exxon Research and Engineering Company

Abstract: The report gives results of a field study to assess the applicability of combustion modification techniques to control NO_x and other pollutant emissions from utility boilers and gas turbines without causing deleterious side effects.

EPA-600/7-78-046, NTIS-PB279-083/AS

Title: Environmental Assessment of Stationary Source NO_x Control Technologies: First Annual Report
Author(s): L. R. Waterland, H. B. Mason, R. M. Evans, K. G. Salvesen, K. J. Wolfe
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Joshua S. Bowen No. Pages: 111
Performing Organization: Acurex Corporation/Aerotherm Division

Abstract: The report summarizes results of the first year of an environmental assessment program for stationary NO_x combustion modification technologies.

EPA-600/7-78-053, NTIS-PB279-999

Title: Nitrogen Dioxide Photolytic, Radiometric, and Meteorological Field Data
Author(s): J. E. Sickles, II, L. A. Ripperton, W. C. Eaton, R. S. Wright
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: G. W. Gay, Jr. No. Pages: 192
Performing Organization: Research Triangle Institute

Abstract: Nitrogen dioxide photolysis data for calculating k_1, and radiometric and selected meteorological data, all under a variety of meteorological conditions, were collected during the spring and fall, 1975. Data from this study can be used to aid the modeling of tropospheric photochemical air quality and smog chamber results.

EPA-600/7-78-099a, NTIS-PB283-109/AS

Title: Emission Reduction on Two Industrial Boilers with Major Combustion Modifications
Author(s): W. A. Carter, H. J. Buening, S. C. Hunter
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 177
Performing Organization: KVB, Inc.

Abstract: The report gives results of a study of the effects on pollutant emissions of extensive combustion modifications on two industrial boilers. Staged combustion variable excess air, and variable air preheat were evaluated while firing natural gas or No. 6 fuel oil in a watertube boiler rated at 16 MW thermal input (55 million Btu/hr).

EPA-600/7-78-100, NTIS-PB282-428

Title: Inventory of Combustion-Related Emissions from Stationary Sources (Second Update)
Author(s): Vernon E. Kemp, Owen W. Dykema
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 385
Performing Organization: The Aerospace Corporation

Abstract: The report describes the full period of a study covering the combustion-related emissions phase of a 3-year program on the analysis of NO_x control in stationary sources.

EPA-600/7-78-120a, NTIS-PB284-520

Title: Emission Characterization of Stationary NO_x Sources: Volume I. Results
Author(s): K. G. Salvesen, K. J. Wolfe, E. Chu, M. A. Herther
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Joshua S. Bowen No. Pages: 233
Performing Organization: Acurex Corporation/Energy and Environmental Division

Abstract: The report gives results of an inventory of gaseous, liquid, and solid effluents from stationary NO_x sources, projected to the year 2000, and ranks them according to their potential for environmental hazard. It projects emissions to 1985 and to 2000 for five energy scenarios, depicting alternative uses of coal, nuclear power, and synthetic fuels.

EPA-600/7-78-120b, NTIS-PB285-429/AS

Title: Emission Characterization of Stationary NO_x Sources: Volume II. Data Supplement
Author(s): K. G. Salvesen, M. Herther, K. J. Wolfe, E. Chu
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Joshua S. Bowen No. Pages: 288
Performing Organization: Acurex Corporation/Energy and Environmental Division

Abstract: The report gives results of an inventory of gaseous, liquid, and solid effluents from stationary NO_x sources, projected to the year 2000, and ranks them according to their potential for environmental hazard. It projects emissions to 1985 and to 2000 for five energy scenarios, depicting alternative uses of coal, nuclear power, and synthetic fuels.

EPA-600/7-78-138, NTIS-

Title: Conventional Combustion Environmental Assessment Program: First Annual Report
Author(s): J. Bruce Truett and Deepak Kenkeremath, William E. Thompson, William Harrison
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Wade H. Ponder No. Pages: 45
Performing Organization: The Mitre Corporation/Metrek Division

Abstract: The report describes the status of EPA's Conventional Combustion Environmental Assessment (CCEA) Program at the end of its first year. The Program was established by EPA to coordinate and integrate the Agency's several research and development projects that involve assessing the environmental effects of pollution from conventional combustion processes.

EPA-600/7-78-139, NTIS-PB285-188/AS

Title: Survey of Projects Concerning Conventional Combustion Environmental Assessments
Author(s): W. E. Thompson, J. W. Harrison
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Wade H. Ponder No. Pages: 107
Performing Organization: Research Triangle Institute

Abstract: The report summarizes information on activities relating to the environmental assessment of stationary conventional combustion processes. The information was gathered on a nationwide basis and includes activities sponsored by government, industry, universities, and trade associations.

EPA-600/7-78-140, NTIS-PB284-974/AS

Title: A Program for the Environmental Assessment of Conventional Combustion Processes
Author(s): Deepak C. Kenkeremath, C. Grant Miller, J. Bruce Truett
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Wade H. Ponder No. Pages: 75
Performing Organization: The Mitre Corporation/Metrek Division

Abstract: The report describes the development of a program plan for EPA's Conventional Combustion Environmental Assessment (CCEA) Program and presents the status of the Program one year after the planning effort was begun.

EPA-600/7-78-165, NTIS-PB286-208/AS

Title: Combustion Research on the Fate of Fuel-Nitrogen Under Conditions of Pulverized Coal Combustion
Author(s): J. M. Levy, J. H. Pohl, A. F. Sarofim, Y. H. Song
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: John H. Wasser No. Pages: 176
Performing Organization: Massachusetts Institute of Technology

Abstract: The report gives results of an experimental investigation of coal pyrolysis and oxidation, and char oxidation to determine the effects of temperature and fuel/oxygen equivalence ratio on the conversion of coal-nitrogen to NO_x.

EPA-600/7-78-191, NTIS-PB288-234/AS

Title: Pollutant Emissions from "Dirty" Low- and Medium-Btu Gases
Author(s): R. T. Waibel, E. S. Fleming, D. H. Larson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: David G. Lachapelle No. Pages: 84
Performing Organization: Institute of Gas Technology

Abstract: The report gives results of a study to determine the emissions from 'dirty' low- and medium-Btu gases when combusted on industrial process burners. The fuels tested were blends with composition typical of Wellman-Galusha oxygen (WGO) and air (WGA) fuel gases.

EPA-600/7-78-212, NTIS-PB289-498

Title: Impact of Point Source Control Strategies on NO_2 Levels
Author(s): B. R. Eppright, E. P. Hamilton III, M. A. Haecker, Carl-Heinz Michelis
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. David Mobley
No. Pages: 198
Performing Organization: Radian Corporation

Abstract: The report gives final results of a study of the effect of two point source NO_x control strategies in the Chicago Air Quality Control Region (AQCR): combustion modification and flue gas treatment. The study involved the dispersion modeling of essentially all point and area sources of NO_x in the AQCR.

EPA-600/7-78-213, NTIS-PB289-450

Title: Reduction of Nitric Oxide with Metal Sulfides
Author(s): F. P. McCandless and Kent Hodgson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. David Mobley
No. Pages: 94
Performing Organization: Montana State University

Abstract: The report gives results of research to determine the technical feasibility of using metal sulfides for the chemical reduction of NO_x to N_2. Nineteen different metal sulfides were investigated, using a test gas of pure NO.

EPA-600/2-77-008c, NTIS-PB264-066/AS

Title: NO_x Formation in CO Flames
Author(s): E. L. Merryman, A. Levy
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. S. Lanier
No. Pages: 131
Performing Organization: Battelle-Columbus Laboratories

Abstract: The report gives results of an experimental study to determine if early NO and NO_2 can be observed in CO flames, since prompt NO is not anticipated and since HO_2 levels might be expected to be lower in CO flames.

EPA-600/2-77-025, NTIS-PB269-277/AS

Title: Reduction of Nitrogen Oxide Emissions from Field Operating Package Boilers--Phase III of III
Author(s): M. P. Heap, C. McComis, T. J. Tyson, R. E. McMillan, R. E. Sommerlad, F. D. Zoldak
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: G. Blair Martin No. Pages: 120
Performing Organization: Ultrasystems, Inc.

Abstract: The report describes the final of three phases of a program to determine the optimum methods of applying both flue gas recirculation (FGR) and staged combustion (SC) to control nitrogen oxides (NO_x) emissions from residual oil-fired package boilers.

EPA-600/2-77-066a, NTIS-PB266-109/AS

Title: Inventory of Combustion-Related Emissions From Stationary Sources (First Update)
Author(s): Owen W. Dykema, Vernon E. Kemp
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 378
Performing Organization: The Aerospace Corporation

Abstract: The report describes the first 2 years of a study covering the combustion-related emissions phase of a 3-year program entitled, 'Analysis of NO_x Control in Stationary Sources.' The study is aimed at assisting in the establishment of priorities for detailed studies of techniques for the control of combustion-related emissions from stationary sources.

EPA-600/2-77-122, NTIS-PB270-112/AS

Title: Field Testing: Application of Combustion Modifications to Control Pollutant Emissions from Industrial Boilers--Phases I and II (Data Supplement)
Author(s): S. C. Hunter, H. J. Buening
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 650
Performing Organization: KVB Engineering, Inc.

Abstract: The Data Supplement records individual data points in greater detail than practical in the Phase I and II reports. Data are included from 47 boilers tested in Phase I, and 19 boilers tested in Phase II.

EPA-600/2-77-190, NTIS-PB273-057/AS

Title: Effects of Combustion Modifications for NO_x Control on Utility Boiler Efficiency and Combustion Stability
Author(s): Owen W. Dykema
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall
No. Pages: 103
Performing Organization: The Aerospace Corporation

Abstract: The report gives results of an evaluation of the possibility that plant efficiency losses or combustion instability might limit NOx reduction by combustion modification. Data from natural-gas- and oil-fired boilers were used in the analyses.

EPA-600/2-77-235, NTIS-PB282-983

Title: Low NO_x Combustion Concepts for Advanced Power Generation Systems Firing Low-Btu Gas
Author(s): T. J. Tyson, M. P. Heap, C. J. Kau, B. A. Folsom, N. D. Brown
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: G. Blair Martin
No. Pages: 228
Performing Organization: Energy and Environmental Research Corporation

Abstract: The report gives results of an analysis of several advanced power generating concepts firing low-Btu gasified coal. A combined gas-turbine/steam-cycle power plant with integrated gasifier was the most promising from fuel utilization and economic viewpoints.

EPA-600/7-77-005, NTIS-PB263-469/AS

Title: Evaluation of the General Motors' Double Alkali SO_2 Control System
Author(s): Edward Interess
Sponsoring Agency: Industrial Environmental Research Laboratory, Reserach Triangle Park, NC
Project Officer: Norman Kaplan
No. Pages: 80
Performing Organization: Arthur D. Little, Inc.

Abstract: The report is an evaluation of the double alkali flue gas desulfurization (FGD) system, installed to control SO_x emissions from the coal-fired industrial boiler complex at General Motors' Chevrolet plant in Parma, Ohio. It describes the boiler and FGD systems.

EPA-600/7-77-006, NTIS-PB263-960/AS

Title: Applicability of NO_x Combustion modifications to Cyclone Boilers (Furnaces)
Author(s): T. E. Ctvrtnicek, S. J. Rusek
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: David G. Lachapelle
No. Pages: 135
Performing Organization: Monsanto Research Corporation

Abstract: The report summarizes available information on nitrogen oxides (NO_x) emissions from cyclone boilers/furnaces, a significant stationary source of these emissions. It discusses the principles of cyclone boiler/furnace operation, and presents population data on boilers in this equipment class.

EPA-600/7-77-094a, NTIS-PB272-614/AS

Title: Burner Design Criteria for NO_x Control from Low-Btu Gas Combustion; Volume I. Ambient Fuel Temperature
Author(s): Donald R. Shoffstall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: David G. Lachapelle
No. Pages: 116
Performing Organization: Applied Combustion Research Institute

Abstract: The report gives results of a research program initiated to characterize problems associated with retrofitting existing utility boilers with low- and medium-Btu gases produced using commercially available coal conversion processes.

EPA-600/7-77-094b, NTIS-PB280-199/AS

Title: Burner Design Criteria for NO_x Control from Low-Btu Gas Combustion; Volume II. Elevated Fuel Temperature
Author(s): Donald R. Shoffstall, Richard T. Waibel
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: David G. Lachapelle
No. Pages: 83
Performing Organization: Applied Combustion Research Institute

Abstract: The report gives results of a program to provide quantitative data on combustion emissions from high-temperature low-Btu gas. It complements a recently completed EPA project that evaluated emissions resulting from the burning of ambient-temperature low-Btu gas.

EPA-600/7-77-103b, NTIS-PB276-948/AS

Title: NO_x Abatement for Stationary Sources in Japan
Author(s): J. Ando, K. Nagata, B. A. Laseke
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. David Mobley No. Pages. 185
Performing Organization: PEDCo. Environmental, Inc.

Abstract: The report describes the status of NO_x abatement technology for stationary sources in Japan as of August 1976. The report emphasizes flue gas treatment processes for control of NO_x.

EPA-600/7-77-117, NTIS-PB277-012/AS

Title: Overfire Air Technology for Tangentially Fired Utility Boilers Burning Western U.S. Coal
Author(s): Richard L. Burrington, John D. Cavers, Ambrose P. Selker
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: David G. Lachapelle No. Pages: 327
Performing Organization: C-E Power Systems, Combustion Engineering, Inc.

Abstract: The report gives results of an investigation and evaluation of the effectiveness of overfire air in reducing NO_x emissions from tangentially fired boilers burning Western U.S. coal.

EPA-600/7-77-119a, NTIS-PB276-680/AS

Title: Preliminary Environmental Assessment of Combustion Modification Techniques: Volume I. Summary
Author(s): H. B. Mason, A. B. Shimizu, J. E. Ferrell, G. G. Poe, L. R. Waterland, R. M. Evans
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Joshua S. Bowen No. Pages: 78
Performing Organization: Acurex Corporation, Aerotherm Division

Abstract: The report gives preliminary methodologies, data compilation, and program priorities for assessing stationary combustion sources and NO_x combustion modification technologies.

EPA-600/7-77-119b, NTIS-PB276-681/AS

Title: Preliminary Environmental Assessment of Combustion Modification Techniques: Volume II. Technical Results
Author(s): H. B. Mason, A. B. Shimizu, J. E. Ferrell, G. G. Poe, L. R. Waterland, R. M. Evans
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Joshua S. Bowen No. Pages: 578
Performing Organization: Acurex Corporation, Aerotherm Division

Abstract: The report gives preliminary methodologies, data compilation, and program priorities for assessing stationary combustion sources and NO_x combustion modification technologies.

EPA-600/7-77-127, NTIS-PB276-637/AS

Title: Technical Assessment of NO_x Removal Processes for Utility Application
Author(s): H. L. Faucett, J. D. Maxwell, T. A. Burnett
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. David Mobley No. Pages: 620
Performing Organization: Tennessee Valley Authority

Abstract: The report gives results of a state-of-the-art review of processes being developed to remove NO_x from power plant stack gas. The report's 48 processes include: wet and dry NO_x processes and wet and dry simultaneous NO_x/SO_x processes.

EPA-600/2-76-013b, NTIS-PB250-586/AS

Title: NO_x Abatement for Stationary Sources in Japan
Author(s): Jumpei Ando, Heiichiro Tohata, Gerald A. Isaacs
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Norman Kaplan No. Pages: 100
Performing Organization: PEDCo

Abstract: The report summarizes regulations for NO_x abatement in Japan, describe techniques for abatement by means of combustion control, and analyzes in detail current wet and dry processes for denitrification of flue gases. The major fuel in Japan is heavy residual oil. Lesser amounts of coal are used. Natural gas usage is insignificant.

EPA-600/2-76-037, NTIS-PB252-195/AS

Title: Catalytic Oxidation of Fuels for NO_x Control from Area Sources
Author(s): J. P. Kesselring, R. A. Brown, R. J. Schrieber, C. B. Moyer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: B. Martin No. Pages: 199
Performing Organization: Aerotherm Division, Acurex Corporation

Abstract: The report gives results of a review of the state-of-the-art of catalytic combustion concepts, and of an assessment of the applicability of catalytic combustion to gas- and oil-fired home heaters and commercial and industrial boilers.

EPA-600/2-76-039, NTIS-PB250-373/AS

Title: Chemistry of Fuel Nitrogen Conversion to Nitrogen Oxides in Combustion
Author(s): A. E. Axworthy, G. R. Schneider, M. D. Shuman, V. H. Dayan
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: B. Martin No. Pages: 375
Performing Organization: Rocketdyne Division

Abstract: The report gives results of an experimental and analytical investigation of chemical mechanisms involved in the conversion of fuel nitrogen to NO_x in combustion.

EPA-600/2-76-061a, NTIS-PB259-911/AS

Title: Burner Criteria for NO_x Control; Volume I. Influence of Burner Variables on NO_x in Pulverized Coal Flames
Author(s): M. P. Heap, T. M. Lowes, R. Walmsley, H. Bartelds, P. LeVaguerese
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: G. Blair Martin No. Pages: 166
Performing Organization: International Flame Research Foundation

Abstract: The report gives results of the first phase of an investigation to specify burner design criteria to control NO_x in natural gas and pulverized coal flames.

EPA-600/2-76-086a, NTIS-PB253-500/AS

Title: Field Testing: Application of Combustion Modifications To Control Pollutant Emissions from Industrial Boilers--Phase II
Author(s): G. A. Cato, L. J. Muzio, D. E. Shore
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 250
Performing Organization: KVB Engineering, Inc.

Abstract: The report gives results of testing 19 coal, oil, and gas-fired industrial boilers to determine their normal emissions and the effectiveness of combustion modifications in reducing NO_x emissions without increasing the emission of particulates and other pollutants.

EPA-600/2-76-094, NTIS-PB258-309

Title: Rapid Method for Determining NO_x Emissions in Flue Gases
Author(s): H. M. Barnes, M. C. Caldwell
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: C. R. Hosler
Performing Organization: Environmental Sciences Research Laboratory

Abstract: This report discusses the NO_x compliance procedure (Method 7) for stationary sources and the attempts to improve the procedure and decrease analytical time.

EPA-600/2-76-098a, NTIS-PB254-167/AS

Title: Burner Design Criteria for Control of NO_x from Natural Gas Combustion; Volume I.
Data Analysis and Summary of Conclusions
Author(s): D. R. Shoffstall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: David G. Lachapelle No. Pages: 204
Performing Organization: Institute of Gas Technology

Abstract: Volume I of the report gives details of, and analyzes, trials conducted with natural gas to determine the relationship between combustion aerodynamics and pollution emission characteristics of industrial burners.

EPA-600/2-76-098b, NTIS-PB256-806/AS

Title: Burner Design Criteria for Control of NO_x from Natural Gas Combustion; Volume II. Raw Data and Experimental Results
Author(s): D. R. Shoffstall
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: David G. Lachapelle No. Pages: 402
Performing Organization: Institute of Gas Technology

Abstract: Volume II discusses completely the procedure used to select the test burners. It includes detailed flame characterizations of baseline operations assembled from in-the-flame temperature, gas species, and flow direction data analysis. It also includes all raw data collected from the input/output trials.

EPA-600/2-76-121, NTIS-PB256-405/AS

Title: Feasibility of a Direct Contact Heat and Emission Loss Prevention System for Area Source Furnaces
Author(s): R. J. Schreiber, G. G. Poe
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. B. Steen No. Pages: 125
Performing Organization: Aerotherm Acurex Corporation

Abstract: The report gives results of a brief study to determine the feasibility of a retrofit device for recovering emissions and waste heat from the flue of a residential furnace.

EPA-600/7-76-012, NTIS-PB261-081/AS

Title: Inventory of Combustion-Related Emissions from Stationary Sources
Author(s): Owen W. Dykema, Vernon E. Kemp
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Robert E. Hall No. Pages: 178
Performing Organization: The Aerospace Corporation

Abstract: The report describes the first year of a study covering the combustion-related emissions inventory phase of a 3-year program entitled, "Analysis of NO_x Control in Stationary Sources." The study is aimed at assisting in the establishment of priorities for detailed studies of techniques for the control of combustion-related emissions from stationary sources.

EPA-600/7-76-026, NTIS-PB261-289/AS

Title: Parametric Studies of Catalysts for NO_x Control from Stationary Power Plants
Author(s): Ken Nobe, George L. Bauerle, S. C. WU
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. D. Stern No. Pages: 245
Performing Organization: University of California

Abstract: The report gives results of a study of vanadia-alumina and iron oxide-chromium oxide-alumina catalysts for the reduction of NO with NH_3 in simulated flue gas. A tabulation of recent publications in the field of NO_x catalysis (particularly selective reduction with NH_3) is presented.

EPA-600/7-76-031, NTIS-PB261-265/AS

Title: Catalytic Reduction of Nitrogen Oxides with Ammonia: Utility Pilot Plant Operation
Author(s): J. M. Kline, P. H. Owen, Y. C. Lee
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. D. Stern No. Pages: 94
Performing Organization: Environics, Inc.

Abstract: The report describes work to demonstrate, on a utility pilot plant scale, the performance, reliability, and practicability of reducing nitrogen oxides (NO_x) emissions from steam boilers by reduction of NO_x with ammonia over a platinum catalyst.

EPA-600/7-76-033, NTIS-PB261-917/AS

Title: Technology and Economics of Flue Gas NO_x Oxidation by Ozone
Author(s): J. W. Harrison
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. D. Stern No. Pages: 70
Performing Organization: Research Triangle Institute

Abstract: The report gives results of an investigation of the kinetics of oxidation of NO by ozone and concludes that a stoichiometric amount of ozone is required when oxidation occurs at flue gas temperatures typical for electrical generating stations.

Flue Gas Particulate Control

This program identifies and develops effective practicable technology to control aerosol emissions from manmade sources. Source categories addressed include industrial combustion, or energy processes. Major research efforts in the program are assessment and extension of the capability of conventional systems (electrostatic precipitators, scrubbers, or fabric filters) for abating aerosol emissions, exploration of new and improved methods of control, and bench-scale investigation of specific control methods for major problem sources (low sulfur coal combustion, new fuels, power production, and selected industrial processes).

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EPA-600/7-79-028, NTIS-PB290-899

Title: Guidelines for Particulate Sampling in Gaseous Effluents from Industrial Processes
Author(s): R. R. Wilson, Jr., P. R. Cavanaugh, K. M. Cushing, W. E. Farthing, W. B. Smith
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 119
Performing Organization: Southern Research Institute

Abstract: The report lists and briefly describes many instruments and techniques used to measure the concentration or size distribution of particles suspended in process streams.

EPA-600/7-79-029a, NTIS-

Title: Emissions Assessment of Conventional Stationary Combustion Systems: Methods and Procedures Manual for Sampling and Analysis
Author(s): J. W. Hamersma, D. G. Ackerman, M. M. Yamada, C. A. Zee, C. Y. Ung, K. T. McGregor, J. F. Clausen, M. L. Kraft, J. S. Shipiro, E. L. Moon
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Ronald A. Venezia No. Pages: 428
Performing Organization: TRW, Inc.

Abstract: The manual describes a detailed and integrated set of sampling and analytical procedures for conventional combustion sources which are compatible with the information requirements of a comprehensive Level 1 environmental assessment. The purpose of the data to be generated by these tests is to ultimately provide emission factors for conventional stationary combustion sources.

EPA-600/7-79-029c, NTIS-

Title: Emissions Assessment of Conventional Stationary Combustion Systems: Volume II. Internal Combustion Sources
Author(s): C. C. Shih, J. W. Hamersma, D. G. Ackerman, R. G. Beimer, M. L. Kraft, M. M. Yamada
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Ronald A. Venezia No. Pages: 238
Performing Organization: TRW, Inc.

Abstract: The report gives results of an assessment of emissions from gas- and oil-fueled gas turbines and reciprocating engines for electricity generation and industrial applications.

EPA-600/7-79-031, NTIS-PB292-381

Title: Filtration Parameters for Dust Cleaning Fabrics
Author(s): Jan R. Koscianowski, Lidia Koscianoska, Eugeniusz Szczepankiewicz
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner No. Pages: 210
Performing Organization: Institute of Industry of Cement Building Materials, Poland

Abstract: The report describes laboratory and pilot scale testing of bag filter fabrics. Filtration performance data and mathematical modeling parameters are given for four Polish fabrics tested with cement dust, coal dust, flyash, and talc.

EPA-600/7-79-042, NTIS-

Title: Comparative Assessment of Trace Metals from Coal- Versus Oil-Firing in a Controlled Industrial Boiler
Author(s): C. Y. Ung, R. F. Maddalone
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Warren D. Peters No. Pages: 100
Performing Organization: TRW, Inc.

Abstract: The report gives results of Level 1 and Level 2 flue gas trace element sampling and analysis of a comprehensive assessment program at Firestone's 10-MW controlled coal- or oil-fired industrial boiler in Pottstown, Pennsylvania.

EPA-600/7-79-043a, NTIS-PB293-551

Title: Fabric Filter Model Format Change; Volume I. Detailed Technical Report
Author(s): Richard Dennis, Hans A. Klemm
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner No. Pages: 110
Performing Organization: GCA Corporation

Abstract: The report describes an improved mathematical model for use by control personnel to determine the adequacy of existing or proposed filter systems designed to minimize coal fly ash emissions.

EPA-600/7-79-044c NTIS-

Title: Symposium on the Transfer and Utilization of Particulate Control Technology: Vol. 3. Scrubbers, Advanced Technology, and HTP Applications
Author(s): F. P. Venditti, J. A. Armstrong, M. Durham
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 513
Performing Organization: Denver Research Institute

Abstract: Papers in the proceedings were presented at the Symposium on the Transfer and Utilization of Particulate Control Technology, in Denver, Colorado, July 24 through 28, 1978.

EPA-600/7-79-044d NTIS-

Title: Symposium on the Transfer and Utilization of Particulate Control Technology: Vol. 4. Fugitive Dusts and Sampling, Analysis and Characterization of Aerosols
Author(s): F. P. Venditti, J. A. Armstrong, M. Durham
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 503
Performing Organization: Denver Research Institute

Abstract: Papers in the proceedings were presented at the Symposium on the Transfer and Utilization of Particulate Control Technology, in Denver, Colorado, July 24 through 28, 1978.

EPA-600/7-79-047, NTIS-PB293-360

Title: Measurement of PCB Emissions from Combustion Sources
Author(s): P. L. Levins, C. E. Rechsteiner, J. L. Stauffer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Larry D. Johnson No. Pages: 100
Performing Organization: Arthur D. Little, Inc.

Abstract: The report describes a gas chromatographic/mass spectrometric (GC/MS) procedure that overcomes problems encountered when using GC procedures (previously used to determine polychlorinated biphenyls (PCBs) in solids and water) on emissions from combustion sources.

EPA-600/7-79-052, NTIS-PB292-820

Title: Characterization of the EPA/IERL-RTP Pilot-Scale Precipitator
Author(s): P. A. Lawless, B. E. Daniel, G. H. Ramsey
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks No. Pages: 83
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The report describes the EPA/IERL-RTP pilot scale electrostatic precipitator, a research device used for testing and verifying new precipitator concepts and models of precipitator operation.

EPA-600/7-79-065, NTIS-

Title: Advances in Particle Sampling and Measurement (Asheville, NC, May 1978)
Author(s): W. B. Smith
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 380
Performing Organization: Southern Research Institute

Abstract: The proceedings consist of 17 papers on improved instruments and techniques for sampling and measuring particulate emissions and aerosols; e.g., cascade impactors, cyclone collectors, and diffusion-battery/nuclei-counter combinations.

EPA-600/7-79-070, NTIS-

Title: Apitron Electrostatically Augmented Fabric Filter Evaluation
Author(s): Larry G. Felix, Joseph D. McCain
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 115
Performing Organization: Southern Research Institute

Abstract: The report gives results of fractional and overall mass efficiency tests of two Apitron electrostatically augmented fabric filter dust collectors. The tests were performed on a mobile pilot-scale system collecting flyash produced by a pulverized-coal-fired industrial boiler and on a full-scale pilot plant collecting redispersed silica dust.

EPA-600/7-79-071, NTIS-

Title: Mobile Bed Flux Force/Condensation Scrubbers
Author(s): S. C. Yung, R. Chmielewski, S. Calvert
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 348
Performing Organization: Air Pollution Technology, Inc.

Abstract: The report gives results of an experimental determination of fine particle collection in mobile bed scrubbers.

EPA-600/7-79-078, NTIS-

Title: Fugitive and Fine Particle Control Using Electrostatically Charged Fog
Author(s): Stuart A. Hoenig
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 60
Performing Organization: University of Arizona

Abstract: The report gives results of a study of fugitive and fine particle control using electrostatically charged fog.

EPA-600/7-79-087, NTIS-

Title: Test of Fabric Filtration Materials
Author(s): Jan R. Koscianowski, Lidia Koscianowska, Maria Szablewicz
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner No. Pages: 260
Performing Organization: Institute of Industry of Cement Building Materials, Poland

Abstract: The report describes pilot scale and laboratory tests of U.S. and Polish woven baghouse fabrics. Cotton, polyester, aramid, and glass fabrics were tested using cement, flyash, coal, and talc dusts.

EPA-600/2-78-032, NTIS-PB279-572/AS

Title: Evaluation of Three Industrial Particulate Scrubbers
Author(s): Seymour Calvert, Harry F. Barbarika, Gary M. Monahan
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 120
Performing Organization: Air Pollution Technology, Inc.

Abstract: The report gives results of field measurements, carried out on three full scale industrial scrubbers to determine scrubber performance characteristics, including particle collection efficiency as a function of particle diameter.

EPA-600/2-78-062, NTIS-PB281-320/AS

Title: Evaluation of Four Novel Fine Particulate Collection Devices
Author(s): S. Calvert, S. C. Yung, H. Barbarika, R. G. Patterson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 138
Performing Organization: Air Pollution Technology, Inc.

Abstract: The report gives results of an experimental performance evaluation of four novel fine particulate control devices: the Johns-Manville Cleanable High-Efficiency Air Filtration (CHEAF) System, the APS Electrostatic Scrubber, the APS Electrotube, and the TRW Charged Droplet Scrubber.

EPA-600/7-78-009, NTIS-PB279-170/AS

Title: Particulate Sampling Support: 1977 Annual Report
Author(s): K. M. Cushing, W. Farthing, L. G. Felix, J. D. McCain, W. B. Smith
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 162
Performing Organization: Southern Research Institute

Abstract: The report describes the activities supporting the particulate sampling efforts of EPA/IERL-RTP during FY 1977.

EPA-600/7-78-011, NTIS-PB284-041

Title: Measurement of High-Temperature, High-Pressure Processes: Annual Report
Author(s): Larry Cooper
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William B. Kuykendal No. Pages: 290
Performing Organization: Aerotherm Division/Acurex Corporation

Abstract: The report reviews the first year's efforts under a planned 3-year program to develop measurement techniques for high-temperature, high-pressure (HTP) processes.

EPA-600/7-78-026, NTIS-PB277-672/AS

Title: SR-52 Programmable Calculator Programs for Venturi Scrubbers and Electrostatic Precipitators
Author(s): Leslie E. Sparks
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks No. Pages: 77
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The report provides useful tools for estimating particulate removal by venturi scrubbers and electrostatic precipitators.

EPA-600/7-78-035, NTIS-PB278-758/AS

Title: Measurement of Fly Ash Resistivity Using Simulated Flue Gas Environments
Author(s): R. E. Bickelhaupt
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks No. Pages: 20
Performing Organization: Southern Research Institute

Abstract: The report, describing the apparatus and laboratory procedures used to determine resistivity for a number of fly ashes under a variety of test conditions, supports research to develop a technique for predicting fly ash resistivity from chemical analyses of coal and coal ash.

EPA-600/7-78-037, NTIS-PB279-625/AS

Title: Second US/USSR Symposium on Particulate Control
Author(s): Franklin A. Ayer
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 620
Performing Organization: Research Triangle Institute

Abstract: The proceedings include papers presented during the symposium, sponsored by the Particulate Technology Subgroup of the US/USSR Stationary Source Air Pollution Technology Working Group held at Research Triangle Park, North Carolina, September 25-October 2, 1977.

EPA-600/7-78-042, NTIS-PB285-433/AS

Title: A Computer-Based Cascade Impactor Data Reduction System
Author(s): J. W. Johnson, G. I. Clinard, L. G. Felix, J. D. McCain
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 125
Performing Organization: Southern Research Institute

Abstract: The report describes a cascade impactor data reduction system written in the FORTRAN IV language. The overall system incorporates six programs: MPPROG, SPLIN1, GRAPH, STATIS, PENTRA, and PENLOG.

EPA-600/7-78-043 NTIS-PB282-501/AS

Title: Technical Manual: A Survey of Equipment and Methods for Particulate Sampling in Industrial Process Streams
Author(s): W. B. Smith, P. R. Cavanaugh, R. R. Wilson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 130
Performing Organization: Southern Research Institute

Abstract: The manual lists and describes the instruments and techniques that are available for measuring the concentration or size distribution of particles suspended in process streams.

EPA-600/7-78-056, NTIS-PB279-637/AS

Title: Tests of Fabric Filtration Materials
Author(s): Jan R. Koscianowski, Lidia Koscianowska, Maria Szablewicz
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner No. Pages: 200
Performing Organization: Institute of Industry of Cement Building Materials, Poland

Abstract: The report describes laboratory and pilot scale testing of filter fabrics. Tests were made on flat specimens and on bags. Fifteen styles of fabrics (made from cotton, polyester, aramid, or glass) were tested, using cement, coal, or talc dusts.

EPA-600/7-78-071, NTIS-PB282-269/AS

Title: Particulate Control for Fugitive Dust
Author(s): George E. Weant, III
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 66
Performing Organization: Research Triangle Institute

Abstract: The report gives results of a study of particulate control for fugitive dust. Study results indicate that many Air Quality Control Regions (AQCRs) do not meet ambient air standards for particulates.

EPA-600/7-78-087, NTIS-PB284-969/AS

Title: Third Symposium on Fabric Filters for Particulate Collection
Author(s): N. Suprenant
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 500
Performing Organization: GCA Technology Division

Abstract: The report presents the 17 technical papers given at an EPA-sponsored symposium, held in December 1977 in Tucson, Arizona, on fabric filters for particle collection. Technical content focused on fabrics for high temperature filtration.

EPA-600/7-78-092, NTIS-PB283-021/AS

Title: Research and Development and Cost Projections for Air Pollution Control Equipment
Author(s): R. W. McIlvaine, Marilyn Ardell
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 24
Performing Organization: The McIlvaine Company

Abstract: The report gives projections for the installed cost of fabric filters and electrostatic precipitators (ESPs) for the removal of particulate matter and for the installed cost of scrubbers for the removal of both particulates and sulfur oxides.

EPA-600/7-78-095, NTIS-PB283-179/AS

Title: Studies of Dust Cake Formation and Structure in Fabric Filtration
Author(s): Bernard Miller, George Lamb, Peter Costanza, Dan O'Meara, Janet Dunbar
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner No. Pages: 40
Performing Organization: Textile Research Institute

Abstract: The report gives results of a study to identify cake characteristics affecting performance and, in turn, to relate the production of desirable cake properties to fabric structure and filtration conditions.

EPA-600/7-78-096, NTIS-PB283-941/AS

Title: Preliminary Design and Initial Testing of a Mobile Electrostatic Precipitator
Author(s): Grady B. Nichols
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 35
Performing Organization: Southern Research Institute

Abstract: The report summarizes work done to provide the general design and assistance in evaluating a mobile electrostatic precipitator (ESP) built for the EPA by the Naval Surface Weapons Center, Dahlgren, Virginia.

EPA-600/7-78-110 NTIS-

Title: Electrostatic Precipitator Technology Assessment: Visits in Japan, November 1977
Author(s): Grady B. Nichols
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Abbott No. Pages: 40
Performing Organization: Southern Research Institute

Abstract: The report summarizes results of the individual discussions, observations during the tour, and discussions of technical papers. Many valuable technical papers supplied to the U.S. team are reproduced in the Appendix of the report.

EPA-600/7-78-111a, NTIS-PB284-614

Title: A Mathematical Model of Electrostatic Precipitation (Revision 1): Volume I. Modeling and Programming
Author(s): Jack R. McDonald
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks
No. Pages: 250
Performing Organization: Southern Research Institute

Abstract: The report briefly describes the fundamental mechanisms and limiting factors involved in the electrostatic precipitation process.

EPA-600/7-78-111b, NTIS-PB284-615

Title: A Mathematical Model of Electrostatic Precipitation (Revision 1): Volume II. User Manual
Author(s): Jack R. McDonald
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks
No. Pages: 110
Performing Organization: Southern Research Institute

Abstract: The report gives a comprehensive description of how to use the computer program which performs the calculations in the mathematical model of electrostatic precipitation, and instructs in the proper usage of the model.

EPA-600/7-78-111c, NTIS-PB286-349/AS

Title: A Mathematical Model of Electrostatic Precipitation: Computer Program
Author(s): Jack R. McDonald
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks
Performing Organization: Southern Research Institute

Abstract: The computer program is a mathematical model of the electrostatic precipitation process in a wire-duct electrostatic precipitator (ESP). Complete documentation of the program is available in other reports available from NTIS: EPA-600/7-78-111a describes modeling and programming; EPA-600/7-78-111b is the user manual.

EPA-600/7-78-112, NTIS-PB284-452/AS

Title: Rapping Reentrainment in a Near Full Scale Pilot Electrostatic Precipitator
Author(s): Grady B. Nichols
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks No. Pages: 20
Performing Organization: Southern Research Institute

Abstract: The report gives results of a research program to identify the characteristics of particulate matter reintroduced into a gas stream flowing through an electrostatic precipitator (ESP) attributable to collection electrode rapping.

EPA-600/7-78-113, NTIS-PB283-289

Title: Procedures Manual for Fabric Filter Evaluation
Author(s): Kenneth M. Cushing, Wallace B. Smith
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 439
Performing Organization: Southern Research Institute

Abstract: The report describes methods to be used in experimentally characterizing the performance of fabric filters for pollution control. It gives a detailed description of the mechanical characteristics of fabric filters.

EPA-600/7-78-114, NTIS-PB283-660/AS

Title: An Electrostatic Precipitator Backup for Sampling Systems
Author(s): P. Vann Bush, Wallace B. Smith
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 27
Performing Organization: Southern Research Institute

Abstract: The report describes a program carried out to design and evaluate the performance of an electrostatic collector to be used as an alternative to filters as a fine particle collector.

EPA-600/7-78-129, NTIS-PB285-864/AS

Title: Evaluation of Electrostatic Precipitator During SRC Combustion Tests
Author(s): Grady B. Nichols, William J. Barrett
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William J. Rhodes
Performing Organization: Southern Research Institute

Abstract: The report deals with the evaluation of an electrostatic precipitator (ESP) and associated environmental factors during the burning of solvent refined coal (SRC) in a boiler at Plant Mitchell of the Georgia Power Company.

EPA-600/7-78-130 NTIS-PB291-430

Title: Evaluation of the PILLS IV
Author(s): William E. Farthing, Wallace B. Smith
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William B. Kuykendal
Performing Organization: Southern Research Institute

Abstract: The report gives results of theoretical and experimental investigations of the operating characteristics of the PILLS IV (Particulate Instrumentation by Laser Light Scattering) in situ particle sizing instrument.

EPA-600/7-78-141, NTIS-PB284-987/AS

Title: EPA Fabric Filtration Studies: Influence of Dust Properties on Particle Penetration
Author(s): R. P. Donovan, B. E. Daniel, J. H. Turner
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner No. Pages: 40
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The report examines the importance of dust properties in determining dust penetration through a fabric filter. The major property considered is the size distribution of the dust, which is an important dust property for dust penetration.

EPA-600/7-78-142b, NTIS-PB287-207/AS

Title: Electrostatic Effects in Fabric Filtration: Volume II. Triboelectric Measurements and Bag Performance (Annotated Data)
Author(s): E. R. Frederick
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner No. Pages: 70
Performing Organization: Carnegie-Mellon University

Abstract: The report describes the construction and application of a bench-scale, single-bag, experimental filter. It also describes several complementary evaluation procedures and their data.

EPA-600/7-78-158, NTIS-PB290-106

Title: Sampling System Evaluation for High-Temperature, High-Pressure Processes
Author(s): William Masters, Robert Larkin, Larry Cooper, Craig Fong
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William B. Kuykendal No. Pages: 103
Performing Organization: Acurex Corporation/Energy and Environmental Division

Abstract: The report describes a sampling system designed for the high temperatures and high pressures found in pressurized fluidized-bed combustors (PFBC). The system uses an extractive sampling approach, withdrawing samples from the process stream for complete analysis of particulate size, mass concentration, shape, and chemical composition.

EPA-600/7-78-167, NTIS-PB291-314

Title: Combustion Research on Characterization of Particulate Organic Matter from Flames
Author(s): R. A. Hites, J. B. Howard
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: John H. Wasser No. Pages: 102
Performing Organization: Massachusetts Institute of Technology

Abstract: The report gives results of a study of the formation and emission of soot and polycyclic aromatic hydrocarbons (PAH) from both laminar flames and a turbulent continuous-flow combustor.

EPA-600/7-78-170, NTIS-PB292-095

Title: Symposium on New Concepts for Fine Particle Control
Author(s): Teoman Ariman
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 450
Performing Organization: University of Notre Dame

Abstract: The report documents presentations made during a symposium on novel concepts, methods, and advanced technology in particulate/gas separation. The symposium, held at the University of Notre Dame and sponsored by the National Science Foundation and the Environmental Protection Agency, was held both to identify new research areas and to stimulate future research activities.

EPA-600/7-78-177a, NTIS-PB288-307/AS

Title: University of Washington Electrostatic Scrubber Tests at a Steel Plant
Author(s): M. J. Pilat, G. A. Raemhild, A. Prem
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 58
Performing Organization: University of Washington

Abstract: The report gives results of a demonstration of the effectiveness of a 1700 cu m/hr (1000 acfm) University of Washington (UW) Electrostatic Spray Scrubber in controlling fine particle emissions from an electric-arc steel furnace.

EPA-600/7-78-178, NTIS-PB290-213

Title: Electrified Bed Evaluation
Author(s): William Piispanen, Robert M. Bradway, Verne Shortell
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 62
Performing Organization: GCA/Technology Division

Abstract: The report gives results of an evaluation of a prototype electrified bed (EFB) particulate collection device. The 500 cfm unit, which utilizes mechanical and electrical mechanisms for collection, was installed at an asphalt roofing plant during the tests.

EPA-600/7-78-189, NTIS-PB288-649

Title: Analysis of Cascade Impactor Data for Calculating Particle Penetration
Author(s): Phil A. Lawless
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks No. Pages: 44
Performing Organization: Research Triangle Institute

Abstract: The report discusses the difficulties of analyzing cascade impactor data to obtain particle penetrations according to size.

EPA-600/7-78-193, NTIS-PB288-203/AS

Title: Particle Collection by a Venturi Scrubber Downstream from an Electrostatic Precipitator
Author(s): L. E. Sparks, G. H. Ramsey, B. E. Daniel
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks No. Pages: 34
Performing Organization: EHE624

Abstract: The report gives results of pilot plant experiments of particulate collection by a venturi scrubber downstream from an electrostatic precipitator (ESP).

EPA-600/7-78-195, NTIS-PB288-270/AS

Title: Effects of Charged Particles on Cascade Impactor Calibrations
Author(s): R. G. Patterson, Philip Riersgard, Seymour Calvert
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 52
Performing Organization: Air Pollution Technology, Inc.

Abstract: The report gives results of a determination of collection characteristics for charged and uncharged particles in cascade impactors.

EPA-600/2-77-011, NTIS-PB272-125/AS

Title: Particulate Collection Efficiency Measurements on an ESP Installed on a Coal-Fired Utility Boiler
Author(s): John P. Gooch, G. H. Marchant, Jr., Larry G. Felix
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks No. Pages: 150
Performing Organization: Southern Research Institute

Abstract: The report gives results of fractional and overall collection efficiency measurements of an electrostatic precipitator collecting fly ash from a coal-fired boiler burning high-sulfur coal.

EPA-600/2-77-056, NTIS-PB266-093/AS

Title: Evaluation of Ceramic Filters for High-Temperature/High-Pressure Fine Particulate Control
Author(s): G. G. Poe, R. M. Evans, W. S. Bonnett, L. R. Waterland
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 50
Performing Organization: Aerotherm Corporation

Abstract: The report gives results of a study to analyze and evaluate ceramic membrane filters as a new, fine particulate (<3 micrometers) control concept for high-temperature (approx. 900 C), high-pressure processes.

EPA-600/2-77-060, NTIS-PB266-103/AS

Title: Seminar on In-Stack Particle Sizing for Particulate Control Device Evaluation
Author(s): Douglas Van Osdell
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 337
Performing Organization: Research Triangle Institute

Abstract: The proceedings document discussions during an EPA/IERL-RTP-sponsored seminar on In-Stack Particle Sizing for Particulate Control Device Evaluation. The seminar, organized by IERL-RTP's Process Measurements Branch, was held at IERL-RTP in North Carolina on December 3 and 4, 1975.

EPA-600/2-77-067, NTIS-PB266-092/AS

Title: Evaluation of Molten Scrubbing for Fine Particulate Control
Author(s): G. G. Poe, L. R. Waterland, R. J. Schreiber
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 38
Performing Organization: Aerotherm Division/Acurex Corporation

Abstract: The report gives results of an evaluation of molten scrubbing for fine particulate control, a concept that study results indicate as seeming to be feasible. Application of the concept to fine particulate clean-up in advanced energy processes seems possible.

EPA-600/2-77-084, NTIS-PB268-008/AS

Title: Recent USSR Literature on Control of Particulate Emissions from Stationary Sources
Author(s): Charles E. Feazel
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: N. Jaworski No. Pages: 98
Performing Organization: Southern Research Institute

Abstract: The report reviews approximately 600 articles, published between 1970 and 1975 in several technical and scientific journals in the USSR and compiled and classified according to subject content. The articles were selected as significant indicators of the status of the technology of controlling air pollution by particulate emissions from stationary sources, with emphasis on fly ash from the combustion of coal in electric power plants.

EPA-600/2-77-110, NTIS-PB271-020/AS

Title: Application of Foam Scrubbing to Fine Particle Control, Phase II
Author(s): T. E. Ctvrtnicek, S. J. Rusek, C. M. Moscowitz, L. N. Cash
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Geddes H. Ramsey No. Pages: 67
Performing Organization: Monsanto Research Corporation

Abstract: The report summarizes the knowledge, experience, and data gained to date, relative to the application of foam scrubbing to collecting fine particles from gaseous streams.

EPA-600/2-77-129, NTIS-PB274-104/AS

Title: Operation and Maintenance of Particulate Control Devices on Coal-Fired Utility Boilers
Author(s): Michael F. Szabo, Richard Gerstle
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 364
Performing Organization: PEDCo

Abstract: The report discusses the control of fine particulate from coal-fired utility boilers, using electrostatic precipitators (ESPs), wet scrubbers, and fabric filters.

EPA-600/2-77-172, NTIS-PB271-515/AS

Title: Venturi Scrubber Performance Model
Author(s): Shui-Chow Yung, Seymour Calvert, Harry F. Barbarika
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks
No. Pages: 190
Performing Organization: A.P.T., Inc.

Abstract: The report gives results of a review and evaluation of available venturi scrubber design equations.

EPA-600/2-77-173, NTIS-PB271-727/AS

Title: Fine Particle Charging Development
Author(s): D. H. Pontius, L. G. Felix, J. R. McDonald, W. B. Smith
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks
No. Pages: 150
Performing Organization: Southern Research Institute

Abstract: The report gives results of theoretical and experimental investigations into the charging of fine particles by unipolar ions in an electric field, and evaluation of a specially designed small pilot-scale (600-1000 acfm) precharging device.

EPA-600/2-77-193, NTIS-PB273-828/AS

Title: Second EPA Fine Particle Scrubber Symposium
Author(s): Richard Parker, Seymour Calvert
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel
No. Pages: 351
Performing Organization: Air Pollution Technology, Inc.

Abstract: The report presents the proceedings, including introductory remarks and 16 technical papers, of the Second Fine Particle Scrubber Symposium, held May 2-3, 1977, in New Orleans.

EPA-600/2-77-197, NTIS-PB271-549/AS

Title: Evaluation of Foam Scrubbing as a Method for Collecting Fine Particulate
Author(s): Geddes H. Ramsey
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Geddes H. Ramsey No. Pages: 78
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The report summarizes the knowledge and data obtained during an investigation of foam scrubbing as a method for collecting fine particulate.

EPA-600/2-77-207, NTIS-PB274-485/AS

Title: High Temperature Particulate Control with Ceramic Filters
Author(s): D. F. Ciliberti
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 167
Performing Organization: Westinghouse Research Laboratory

Abstract: The report gives results of an assessment of using ceramic materials as filters for fine particulate removal at high temperatures.

EPA-600/2-77-238, NTIS-PB277-075/AS

Title: Fine Particle Collection by a Flux-Force/Condensation Scrubber: Pilot Demonstration
Author(s): Seymour Calvert, Shamim Gandhi
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 224
Performing Organization: Air Pollution Technology, Inc.

Abstract: The report gives results of a pilot-scale demonstration of flux-force/condensation (FF/C) scrubbing for fine particle control, carried out on a secondary metal recovery furnace. Results were consistent with those of preceding laboratory bench-scale and pilot-plant studies.

EPA-600/7-77-001, NTIS-PB263-468/AS

Title: Fine Particle Emissions Information System User Workshop
Author(s): M. P. Schrag
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: G. L. Johnson
No. Pages: 150
Performing Organization: Midwest Research Institute

Abstract: The proceedings document a User Workshop for the Fine Particle Emissions Information System (FPEIS), held June 15, 1976, at EPA's Environmental Research Center, Research Triangle Park, NC. Purpose of the Workshop was to introduce the user community to FPEIS.

EPA-600/7-77-002, NTIS-PB264-203/AS

Title: Effects of Temperature and Pressure on Particle Collection Mechanisms: Theoretical Review
Author(s): Seymour Calvert, Richard Parker
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel
No. Pages: 86
Performing Organization: A.P.T., Inc.

Abstract: The report is a critical review and evaluation of the mechanics of aerosols at high temperatures and pressures. It discusses equations and models used to predict particle behavior at normal conditions, with regard to their applicability at high temperatures and pressures.

EPA-600/7-77-010, NTIS-PB265-374/AS

Title: Characterization of Ash from Coal-Fired Power Plants
Author(s): S. S. Ray, F. G. Parker
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. W. Jones
No. Pages: 144
Performing Organization: Tennessee Valley Authority

Abstract: The report summarizes existing data on the chemical and physical characteristics of ashes produced by the burning of coal in steam-electric generating plants. It summarizes several recent coal or ash characterization studies, emphasizing the elemental chemical composition, particularly trace inorganic consituents. The report also summarizes the physical and chemical characteristics of sulfur dioxide scrubbing sludges, which are becoming a significant portion of total power plant residues.

EPA-600/7-77-013, NTIS-PB266-231/AS

Title: EPA and ERDA High-Temperature/High-Pressure Particulate Control Programs
Author(s): R. A. Kennedy, H. Dhillon, J. B. Truett
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 56
Performing Organization: The Mitre Corporation

Abstract: The report describes and compares current projects sponsored by EPA and the U.S. Energy Research and Development Administration (ERDA), relating to the control of particulate matter in fuel gas streams at high temperatures (1000 to 2000 F) and high pressures (5 atm and greater). Comparison of EPA and ERDA activities for possible overlap and omissions is summarized in the conclusions which indicate that there is little evidence of any overlap or duplication.

EPA-600/7-77-019, NTIS-PB269-850/AS

Title: TVA's 1-MW Pilot Plant: Final Report on High-velocity Scrubbing and Vertical Duct Mist Elimination
Author(s): G. Hollinden, R. Robards, N. Moore, T. Kelso, R. Cole
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. E. Williams No. Pages: 54
Performing Organization: TVA, Power Research Staff

Abstract: The report describes the systematic test program that led to the development of washing techniques that maintain continuous mist eliminator performance for lime/limestone closed-loop scrubbing systems. TVA recently demonstrated the techniques at its 1-MW pilot plant at the Colbert Power Plant. The report also describes high-velocity scrubbing tests performed in conjunction with the mist eliminator tests.

EPA-600/7-77-022, NTIS-PB266-233/AS

Title: Filter Cake Redeposition in a Pulse-Jet Filter
Author(s): David Leith, Melvin W. First
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner No. Pages: 35
Performing Organization: Harvard School of Public Health

Abstract: The report gives results of a pilot-scale study of pulse-jet filter cleaning, a process that is ineffective to the extent that collected dust redeposits, rather than falling to the hopper. Dust tracer techniques were used to measure the amount of redeposition.

EPA-600/7-77-023, NTIS-PB266-912/AS

Title: Fractional Efficiency of an Electric Arc Furnace Baghouse
Author(s): Reed W. Cass, John E. Langley
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner
Performing Organization: GCA/Technology Division
No. Pages: 180

Abstract: The report gives results of an evaluation of the performance of a fabric filter system controlling emissions from either one or two 30-ton electric arc furnaces producing a high-strength, low-allow specialty steel. The evaluation involved measuring the system's total mass collection efficiency and apparent fractional collection efficiency.

EPA-600/7-77-033, NTIS-PB268-238

Title: Compact, In-Stack, Three Size Cut Particle Classifier
Author(s): George E. Lacey, Kenneth M. Cushing, Wallace B. Smith
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: K. T. Knapp
Performing Organization: Southern Research Institute
No. Pages: 105

Abstract: A compact, in-stack, three size cut particle classifier was designed, fabricated and tested. The classifier was calibrated in the laboratory with monodisperse aerosols from a vibrating orifice aerosol generator. In field tests at three power plants, particle size distribution by the classifier were compared to particle size distributions by Andersen and Brink samplers.

EPA-600/7-77-041, NTIS-PB267-558

Title: Survey of Sulfate, Nitrate, and Acid Aerosol Emissions and Their Control
Author(s): J. F. Kircher, A. A. Putnam, D. A. Ball, H. H. Krause, J. M. Genco, R. W. Coutant, J. O. L. Wendt, A. Levy
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. S. Lanier
Performing Organization: Battelle-Columbus Laboratories
No. Pages: 171

Abstract: The report gives results of an evaluation of the effects of fuel and combustion modifications on the formation of primary acid aerosols (used broadly to include all sulfates, nitrates, chlorides, and fluorides in all their forms) and their significance as combustion-generated pollutants from large stationary sources.

EPA-600/7-77-042, NTIS-PB267-441/AS

Title: EPA Research in Fabric Filtration: Annual Report on IERL-RTP Inhouse Program
Author(s): James H. Turner
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The report summarizes EPA's inhouse research program in fabric filtraton, involving investigations into the basic mechanisms of dust/fabric interaction in order to develop improved understanding of the process.

EPA-600/7-77-044, NTIS-PB268-559

Title: Selection and Evaluation of Sorbent Resins for the Collection of Organic Compounds
Author(s): J. Adams, J. King, P. Levins
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Larry D. Johnson No. Pages: 65
Performing Organization: Arthur D. Little, Inc.

Abstract: The report gives results of an experimental program to characterize the behavior of resins which can be used in the sorbent trap module of a sampling train used for environmental assessment studies.

EPA-600/7-77-059, NTIS-PB269-698/AS

Title: Procedures Manual for Electrostatic Precipitator Evaluation
Author(s): Wallace B. Smith, Kenneth M. Cushing, Joseph D. McCain
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 365
Performing Organization: Southern Research Institute

Abstract: The procedures manual specifies methods to be used to perform characterization of electrostatic precipitators (ESPs) for pollution control. Procedures are described for measuring particle-size distribution, mass concentration, and the concentration of major gaseous components of the flue gas aerosol.

EPA-600/7-77-060, NTIS-PB276-583/AS

Title: Inertial Cascade Impactor Substrate Media for Flue Gas Sampling
Author(s): Larry G. Felix, George I. Clinard, George E. Lacey, Joseph D. McCain
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris — No. Pages: 83
Performing Organization: Southern Research Institute

Abstract: The report summarizes Southern Research Institute's experience with greases and glass fiber filter material used as collection substrates in inertial cascade impactors. Laboratory and field studies are described which were directed toward developing a method to passivate glass fiber filter material to SO_x induced mass gains.

EPA-600/7-77-071, NTIS-PB271-699/AS

Title: High-Temperature and High-Pressure Particulate Control Requirements
Author(s): Richard Parker, Seymour Calvert
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel — No. Pages: 117
Performing Organization: Air Pollution Technology, Inc.

Abstract: The report reviews and evaluates high-temperature and high-pressure particulate cleanup requirements of existing and proposed energy processes. Primary emphasis is on the requirements of processes now being proposed as clean methods for obtaining energy from coal; that is, fluidized-bed coal combustion, coal gasification, and direct coal-fired gas turbines.

EPA-600/7-77-084, NTIS-PB276-489/AS

Title: Filtration Model for Coal Fly Ash with Glass Fabrics
Author(s): R. Dennis, R. W. Cass, D. W. Cooper, R. R. Hall, V. Hampl, H. A. Klemm, J. E. Langley, R. W. Stern
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner — No. Pages: 450
Performing Organization: GCA Corporation

Abstract: The report describes a new mathematical model for predicting woven glass filter performance with coal fly ash aerosols from utility boilers.

EPA-600/7-77-095a, NTIS-PB271-966/AS

Title: EPA Fabric Filtration Studies: Bag Aging Effects
Author(s): R. P. Donovan, B. E. Daniel, J. H. Turner
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner   No. Pages: 45
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The report gives results of a study to determine the effects of aging on filter bags made of woven polyester. Fabric filter life can be divided into three periods: break-in, steady-state, and wear-out.

EPA-600/7-77-095b, NTIS-PB274-922/AS

Title: EPA Fabric Filtration Studies: Bag Cleaning Technology (High Temperature Tests)
Author(s): B. E. Daniel, R. P. Donovan, J. H. Turner
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner   No. Pages: 35
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The report gives results of a laboratory study to determine the influence of high temperature operation (operation in an air flow whose temperature has been adjusted to the maximum continuous operating temperature recommended by the manufacturer) on the selection of fabric filter shake-cleaning parameters.

EPA-600/7-77-104, NTIS-PB272-550

Title: Liberature Survey of Emissions Association with Emerging Energy Technologies
Author(s): J. E. Sickles, II, W. C. Eaton, L. A. Ripperton, R. S. Wright
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: J. J. Bufalini   No. Pages: 75
Performing Organization: Research Triangle Institute

Abstract: A literature survey was conducted to address fuel contaminants and atmosperic emissions from the following energy-related operations: coal gasification, coal liquefaction, shale oil production, and petroleum refining.

EPA-600/7-77-110, NTIS-PB272-784/AS

Title: Hydrocarbon Pollutants from Stationary Sources
Author(s): E. C. Cavanaugh, M. L. Owen, T. P. Nelson, J. R. Carroll, J. D. Colley
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Lewis D. Tamny No. Pages: 315
Performing Organization: Radian Corporation

Abstract: The report gives results of a study of hydrocarbon pollutants from stationary sources. Specific processes and operations representing the greatest potential for the reduction of hydrocarbon emissions and effluents by the application of central technology were selected for further study.

EPA-600/7-77-115, NTIS-PB273-359/AS

Title: Nonwoven Fabric Filters for Particulate Removal in Respirable Dust Range
Author(s): Bernard Miller, George Lamb, Peter Costanza, Jeffrey Craig
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner No. Pages: 54
Performing Organization: Textile Research Institute

Abstract: The report gives results of an extension of studies of the influences of fiber geometric properties on the ability of nonwoven fabrics to filter particles from gas streams to a wider range of geometric variables and to the measurement of capture efficiencies for particle sizes in the respirable range down to 0.024 micrometers.

EPA-600/7-77-129, NTIS-PB276-470/AS

Title: Particle Size Definitions for Particulate Data Analysis
Author(s): J. B. Galeski
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Gary L. Johnson No. Pages: 25
Performing Organization: Midwest Research Institute

Abstract: The report gives results of a survey to identify all equations required to represent particle size data according to each of three particle diameter definitions: Stokes, classical aerodynamic, and aerodynamic impaction (or Lovelace diameter). The equations may also be useful to readers of fine particle sampling reports who may wish to convert the data from one definition to a more convenient one.

EPA-600/7-77-131, NTIS-PB276-645/AS

Title: Use of Electrostatically Charged Fog for Control of Fugitive Dust Emissions
Author(s): Stuart A. Hoenig
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel   No. Pages: 88
Performing Organization: University of Arizona

Abstract: The report gives results of tests of the use of electrostatically charged fog to control a wide variety of industrial pollutants, ranging from silica flour to SO_2 and fly ash.

EPA-600/7-77-132, NTIS-PB276-626/AS

Title: Development of a High-Temperature/High-Pressure Electrostatic Precipitator
Author(s): J. R. Bush, P. L. Feldman, M. Robinson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Leslie E. Sparks   No. Pages: 126
Performing Organization: Cottrell Environmental Systems

Abstract: The report gives results of a laboratory test demonstrating the feasibility of electrostatic precipitation at high temperatures (to 1366 K) and pressures (to 3550 kPa): corona currents were stable at all temperatures.

EPA-600/7-77-140, NTIS-PB276-976/AS

Title: Particulate Control with Cleanable Cartridge Filters Using Double-Layer Media
Author(s): William J. Krisko, Michael A. Shackleton
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel   No. Pages: 180
Performing Organization: Donaldson Company, Inc.

Abstract: The report gives results of a detailed assessment of the feasibility of a new concept in fine particle filtration, nonwoven, double-mat, cartridge filters.

EPA-600/7-77-148, NTIS-PB276-973/AS

Title: Second Symposium on Fugitive Emissions: Measurement and Control
Author(s): J. King
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris
No. Pages: 275
Performing Organization: TRC--The Research Corporation of New England

Abstract: The proceedings are a compilation of technical papers prepared for presentation at the Second Symposium on Fugitive Emissions, May 23-25, 1977, Houston, Texas.

EPA-600/2-76-052, NTIS-PB253-452/AS

Title: Impact of Clean Fuels Combustion on Primary Particulate Emissions from Stationary Sources
Author(s): Not identified
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: G. L. Johnson
No. Pages: 75
Performing Organization: Aerotherm/Acurex Corporation

Abstract: The report gives results of an examination of various coal conversion processes proposed for sulfur removal, to determine the implications for particulate removal requirements when the converted fuels are burned.

EPA-600/2-76-172, NTIS-PB262-720

Title: Fine Particle Emissions Information System User Guide
Author(s): M. P. Schrag, A. K. Rao, G. S. McMahon, G. L. Johnson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: G. L. Johnson
No. Pages: 50
Performing Organization: Midwest Research Institute

Abstract: The report is an extensive user guide to the Fine Particle Emissions Information System (FPEIS), a computerized database on primary fine particle emissions to the atmosphere from stationary sources, designed to assist engineers and scientists engaged in fine particle control technology development.

EPA-600/2-76-173, NTIS-PB262-721

Title: Fine Particle Emissions Information System Reference Manual
Author(s): M. P. Schrag, A. K. Rao, G. S. McMahon, G. L. Johnson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: G. L. Johnson No. Pages: 75
Performing Organization: Midwest Research Institute

Abstract: The report is a basic reference manual on the Fine Particle Emissions Information System (FPEIS).

EPA-600/2-76-174, NTIS-PB258-825/AS

Title: Fine Particle Emissions Information System: Summary Report (Summer 1976)
Author(s): M. P. Schrag, A. K. Rao
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: G. L. Johnson No. Pages: 125
Performing Organization: Midwest Research Institute

Abstract: The report summarizes the initial loading of data into the Fine Particle Emissions Information System (FPEIS).

EPA-600/7-76-010, NTIS-PB260-499/AS

Title: Symposium on Particulate Control in Energy Processes
Author(s): David E. Blake
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 577
Performing Organization: Aerotherm Division/Acurex Corporation

Abstract: Purpose of the symposium was to examine the current state of particulate control technology for energy processes, to discuss practical solutions to problems with particulate from Western U.S. coals, and to consider recent progress in high-temperature/high-pressure energy processes.

EPA-600/7-76-016, NTIS-PB260-498/AS

Title: Conference on Particulate Collection Problems in Converting to Low Sulfur Coals
Author(s): G. B. Nichols
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel
No. Pages: 258
Performing Organization: Southern Research Institute

Abstract: These proceedings present papers that discuss problems encountered in burning low-sulfur coal in electrical utility power plant boilers. Operating experience with electrostatic precipitators (ESPs), fabric filter baghouses, and wet scrubbers for control of fly ash stack emissions and techniques for improving performance are described.

EPA-600/7-76-021, NTIS-PB263-449/AS

Title: TVA's 1-MW Pilot Plant: Vertical Duct Mist Elimination Testing--Progress Report
Author(s): G. A. Hollinden, R. F. Robards, N. D. Moore, T. M. Kelso, R. M. Cole
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: John E. Williams
No. Pages: 29
Performing Organization: TVA, Power Research Staff, Chattanooga, TN and TVA, Office of Agricultural and Chemical Development, Muscle Shoals, AL

Abstract: The report reviews (for both the lime and limestone systems) the systematic test program which developed recent TVA-demonstrated washing techniques that maintain continuous mist eliminator performance for lime/limestone closed-loop scrubbing systems at TVA's 1-MW pilot plant at the Colbert power plant.

EPA-600/7-76-029, NTIS-PB263-891/AS

Title: Emissions from Residential and Small Commercial Stoker-Coal-Fired Boilers Under Smokeless Operation
Author(s): Robert D. Giammar, Richard B. Engdahl, Richard E. Barrett
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: J. H. Wasser
No. Pages: 84
Performing Organization: Battelle-Columbus Laboratories

Abstract: The report gives results of a technical assessment of the advisability of increased use of stoker coal for residential and small commercial space heaters. The experimental investigation indicated that smokeless operation of a small stoker could be achieved for the coals evaluated (coals generating the highest smoke levels generated the highest particulate and POM levels).

Health and Environmental Effects Program

Health and environmental effects research and development within the Interagency Energy/Environment Program is designed to determine which energy-related pollutants are harmful to human health and the environment and to ascertain their origin, transformation, and eventual fate.

Measurement Systems And Instrumentation

The purpose of this activity is to focus and coordinate the research and development on energy-related measurements and instrumentation which is being performed by the Department of Energy, National Aeronautics and Space Administration, National Bureau of Standards, National Institute of Occupational Safety and Health, National Oceanic and Atmospheric Administration and the Environmental Protection Agency. This activity has two closely related but distinct research objectives.

The first objective is to provide baseline and trend data in those geographical regions where expanding energy development is projected to have a major impact on air, water, or land. Advanced monitoring techniques are needed to support such studies.

The second objective is to develop measurement methods and instrumentation for energy-related pollutants in ambient air and water which result from new energy technologies and expanding energy development.

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EPA-600/2-79-022, NTIS-PB292-108

Title: Multiwavelength Transmissometer for Measuring Mass Concentration of Particulate Emissions
Author(s): Eli Reisman
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: W. D. Conner No. Pages: 63
Performing Organization: Ford Aerospace and Communications Corporation

Abstract: The theory behind the measurement technique, a laboratory demonstration of the technique, and the optical and electrical design of the instrument are discussed.

EPA-600/2-79-023, NTIS-PB292-330

Title: Continuous Reading Lidar Technique for Measuring Plume Opacity
Author(s): Dilip G. Saraf
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: W. D. Conner No. Pages: 55
Performing Organization: SRI International

Abstract: The development of a laser radar (lidar) instrument for remote measurement of the opacity of smoke-stack plumes is described.

EPA-600/7-79-039, NTIS-PB293-279

Title: Compendium Reports on Oil Shale Technology
Author(s): G. C. Slawson, Jr., T. F. Yen
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Las Vegas, NV
Project Officer: Leslie G. McMillion No. Pages: 224
Performing Organization: General Electric Company--TEMPO

Abstract: The compendium or summary reports included in this document consider the various production processes (mining, retorting, and oil upgrading) and key environmental factors (organic and inorganic characterization, environmental control, and limitations) related to oil shale development.

EPA-600/7-79-054, NTIS-

Title: Application of Germanium Detectors to Environmental Monitoring
Author(s): D. W. Nix, R. P. Powers, L. G. Kanipe
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: C. W. Hall
Performing Organization: Tennessee Valley Authority

Abstract: This report examines the problems involved in applying germanium detectors to the analysis of environmental samples. All aspects of germanium spectroscopy (equipment, system installation, quality control, energy and efficiency calibration, spectral analysis, analytical sensitivities, and cost considerations) are surveyed.

EPA-600/7-79-056, NTIS-

Title: The Evaluation of Fluoride Ion-Selective Electrodes in Freshwater and Seawater
Author(s): Gary K. Ward
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: C. W. Hall
Performing Organization: National Oceanic and Atmospheric Administration

Abstract: The Beckman and Orion fluoride ion-selective electrodes were evaluated in freshwater and seawater media.

EPA-600/7-79-057, NTIS-

Title: Test and Evaluation of Potassium Sensors in Fresh and Salt Water
Author(s): Gary K. Ward
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: C. W. Hall
Performing Organization: National Oceanic and Atmospheric Administration

Abstract: Three types of potassium ion-selective electrodes were evaluated for suitability in monitoring or in-situ measurement applications.

EPA-600/7-79-058, NTIS-

Title: Evaluation of Calcium Sensors in Fresh and Salt Water
Author(s): Gary K. Ward
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: C. W. Hall
Performing Organization: National Oceanic and Atmospheric Administration

Abstract: The Orion Calcium Ion Electrode #93-20 was evaluated for suitability as a calcium ion sensor for monitoring or in-situ marine applications by testing for the following parameters: accuracy, precision, temperature dependence, short - and long-term stability, durability, sensitivity to fluctuations in light intensity and flow conditions, response time as a function of temperature and concentration, and variability between modules.

EPA-600/7-79-059, NTIS-

Title: Evaluation of the Orion Divalent Specific Ion Electrode
Author(s): Gary K. Ward
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: C. W. Hall
Performing Organization: National Oceanic and Atmospheric Administration

Abstract: The Orior Divalent Cation Specific Ion Electrode #93-32 was evaluated for suitability in monitoring or in-situ marine applications as a magnesium ion sensor.

EPA-600/7-79-061, NTIS-

Title: Evaluation of Sodium Ion Electrodes in Freshwater and Seawater
Author(s): Gary K. Ward, Jerald M. Peterson
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D. C.
Project Officer: C. W. Hall
Performing Organization: National Oceanic and Atmospheric Administration

Abstract: Five sodium ion electrodes were evaluated in freshwater and seawater for the following parameters: accuracy, precision, temperature dependence, short and long-term stability, durability, response time as a function of temperature and sodium concentration, variations between manufacturers, sensitivity to variations in light intensity and flow conditions, and suitability for application as components in monitoring or in-situ chemical analysis systems.

EPA-600/7-79-074, NTIS-

Title: Western Energy Sulfate/Nitrate Monitoring Network Progress Report
Author(s): Michael J. Pearson, Marc Pitchford, and Robert Snelling
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Las Vegas, NV
Project Officer: M. J. Pearson No. Pages: 48
Performing Organization: Environmental Monitoring and Support Laboratory

Abstract: Interest in sulfate and nitrate aerosols has been on the increase largely due to studies relating sulfate and nitrate to health effects and visibility degradation and to changes in our national energy policy. The present and planned utilization of coal resources in the western United States will add to the sulfate-nitrate burden. However, little sulfate-nitrate data are available to establish a baseline and evaluate the impact of this development. The data presented in this report cover the sampling period from January 1975 to December 1977.

EPA-600/7-79-080, NTIS-

Title: Computer Processing Results of Scanner Data Over Selected Coal Strip Mines
Author(s): Charles E. Tanner
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Las Vegas, NV
Project Officer: G. J. D'Alessio No. Pages: 60
Performing Organization: Lockheed Electronics Company, Inc.

Abstract: Aircraft multispectral scanner data over six coal strip mines in the States of Wyoming, Montana, Colorado, and Arizona were processed on the data analysis mini-computer system using a clustering approach to automatic pattern recognition. The classification results demonstrated that a Level I hierarchy of vegetation, manmade features, and disturbed areas is easily obtained with a minimum expenditure of time.

EPA-600/7-79-086, NTIS-

Title: Critical Evaluation of Differential Pulse Polarography for Determining Chromium(III) and CHROMIUM(VI) In Water Samples
Author(s): Lyman H. Howe, Isaac E. Jones, and Norman K. Stanley
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: J. Stemnle No. Pages: 30
Performing Organization: Tennessee Valley Authority

Abstract: The Tennessee Valley Authority critically evaluated differential pulse polarography for determining chromium(VI) and chromium(III) in water samples from coal-fired steam-electric generating stations.

EPA-600/2-78-007, NTIS-PB277-394

Title: Evaluation of a Sulfur Dioxide Mass Emission Rate Monitoring System
Author(s): Roosevelt Rollins
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: R. Rollins No. Pages: 37
Performing Organization: Environmental Sciences Research Laboratory

Abstract: An evaluation was conducted to determine the capabilities and limitations of a commercially available monitoring system that provides sulfur dioxide mass emission rate data as a direct output. The monitoring system was operated continuously for extended periods at a coal-fired power plant and a sulfuric acid production facility. Results are presented for three performance tests at the field sites.

EPA-600/7-78-008, NTIS-PB279-084/AS

Title: Development and Laboratory Evaluation of a Five-Stage Cyclone System
Author(s): Wallace B. Smith, Rufus Ray Wilson, Jr.
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 58
Performing Organization: Southern Research Institute

Abstract: The report describes the development and calibration of a five-stage cyclone system, designed and fabricated by Southern Research Institute. The system was calibrated using both a vibrating-orifice aerosol generator and a pressurized Collison nebulizer.

EPA-600/7-78-013, NTIS-PB277-013/AS

Title: Characterization and Generation of Metal Aerosols
Author(s): Neil Zimmerman, Dennis C. Drehmel, James H. Abbott
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dennis C. Drehmel No. Pages: 50
Performing Organization: Industrial Environmental Research Laboratory

Abstract: The report reviews techniques of metal aerosol generation for the purpose of establishing the state-of-the-art of the technology and guiding future researchers. Exposure to metal or metallic compound submicron aerosols is widespread in both industrial and general environments.

EPA-600/7-78-016, NTIS-PB279-212/AS

Title: EPA/IERL-RTP Interim Procedures for Level 2 Sampling and Analysis of Organic Materials
Author(s): J. C. Harris, P. L. Levins
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Larry D. Johnson No. Pages: 100
Performing Organization: Arthur D. Little, Inc.

Abstract: The interim report presents concepts and guidelines to be used in considering Level 2 sampling and analysis for organic compounds.

EPA-600/7-78-017, NTIS-PB279-910/AS

Title: Effect of Handling Procedures on Sample Quality
Author(s): J. W. Adams, T. E. Doerfler, C. H. Summers
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Larry D. Johnson No. Pages: 49
Performing Organization: Arthur D. Little, Inc.

Abstract: The report gives results of an evaluation of the effects of typical shipping and storage handling procedures on organic materials collected in Level 1 environmental assessment (EA) studies.

EPA-600/7-78-018, NTIS-PB279-757/AS

Title: Source Assessment Sampling System: Design and Development
Author(s): D. E. Blake
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William B. Kuykendal No. Pages: 180
Performing Organization: Acurex Corporation/Aerotherm Division

Abstract: The report chronologically describes the design and development of the Source Assessment Sampling System (SASS).

EPA-600/7-78-029, NTIS-PB278-914

Title: Atmospheric Chemistry of Potential Emissions From Fuel Conversion Facilities, A Smog Chamber Study
Author(s): J. E. Sickles, II, L. A. Ripperton, W. C. Eaton, and R. S. Wright
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: B.W. Gay, Jr. No. Pages: 258
Performing Organization: Research Triangle Institute

Abstract: The atmospheric chemistry of chemical species that may be emitted from fuel conversion facilities were studied in smog chambers. Of 17 compounds assessed for ozone-forming potential, 6 compounds were selected for testing in the presence of nitrogen oxides in four outdoor smog chambers.

EPA-600/7-78-054, NTIS-PB284-347

Title: Characterization of Sorbent Resins for Use in Environmental Sampling
Author(s): R. F. Gallant, J. W. King, P. L. Levins, J. F. Piecewicz
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Larry D. Johnson No. Pages: 150
Performing Organization: Arthur D. Little, Inc.

Abstract: The report describes the use of chromatographic techniques to characterize resins which are used to trap vapors in environmental sampling schemes.

EPA-600/7-78-075, NTIS-PB290-968

Title: Determination of Zinc, Cadmium, Lead, and Copper in Water by Anodic Stripping Voltammetry
Author(s): Lyman H. Howe, Isaac E. Jones
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington D.C.
Project Officer: G. J. D'Alessio
Performing Organization: Tennessee Valley Authority

Abstract: The Tennessee Valley Authority developed a method of differential-pulse anodic stripping voltammetry for determining total concentrations of cadmium and lead in water samples from ash ponds at steam-electric generating plants.

EPA-600/7-78-079, NTIS-PB279-076

Title: Airborne Monitoring of Cooling Tower Effluents - Vol I: Technical Summary
Author(s): George J. Woffinden, Paul R. Harrison, Jerry A. Anderson
Sponsoring Agency: Corvallis Environmental Research Laboratory, Corvallis, OR
Project Officer: No. Pages: 134
Performing Organization: Meteorology Research, Inc.

Abstract: MRI conducted an airborne plume monitoring program as part of the Chalk Point Cooling Tower Project. Plume measurement included: temperature, dew point, visibility turbulence, droplet size distribution and concentration, liquid water content, sodium chloride concentration (NaCl), sulfuric acid concentration (H_2SO_4), sulfur dioxide concentration (SO_2).

EPA-600/7-78-083, NTIS-PB285-595

Title: Evaluation of the U.S. Geological Survey Laboratory, Denver, CO
Author(s): Robert L. Booth
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Cincinnati, OH
Project Officer: R. L. Booth No. Pages: 18
Performing Organization: Environmental Monitoring and Support Laboratory

Abstract: An onsite evaluation was made of the capabilities of the U.S. Geological Survey Laboratory at Denver, Colorado. Particular emphasis was placed on determining their ability to meet the monitoring requirements connected with their contractual efforts with the U.S. Environmental Protection Agency. This monitoring is a major part of the Environmental Protection Agency's quality assurance program in support of energy-related activities in the western United States.

EPA-600/7-78-085, NTIS-PB284-859

Title: Investigation of Matrix Interferences for AAS Trace Metal Analyses of Sediments
Author(s): Mary M. McKown, Charles R. Tschirn, Patty P. F. Lee
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Cincinnati, OH
Project Officer: J. F. Kopp No. Pages: 138
Performing Organization: Gulf South Research Institute

Abstract: This research program was initiated with the overall objective of developing reliable, cost-effective methods utilizing flame atomic absorption spectrophotometry for the trace elemental analysis of soil and sediment samples containing complex matrices. Conventional flame AAS methods were found to produce accurate results for the analyses of cobalt, copper, lead, manganese, nickel and zinc in these matrices.

EPA-600/7-78-093, NTIS-PB283-973/AS

Title: Evaluations of Novel Particulate Control Devices
Author(s): Joseph D. McCain
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 94
Performing Organization: Southern Research Institute

Abstract: The report gives results of fractional and overall mass efficiency tests of four novel particulate control devices. Three were wet scrubbers and a CEA Variable-Throat Centuri Scrubber.

EPA-600/7-78-094, NTIS-PB285-723/AS

Title: CEA Variable-Throat Venturi Scrubber Evaluation
Author(s): Joseph D. McCain
Sponsoring Agency: Industrial Environmental Research Laboratory
Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 80
Performing Organization: Southern Research Institute

Abstract: The report gives detailed results of fractional and overall mass efficiency tests of a Combustion Equipment Associates (CEA) variable-throat venturi scrubber. The tests were performed on a full-scale scrubber used for controlling particles and SO_x emissions from a pulverized-coal-fired utility boiler.

EPA-600/7-78-097, NTIS-PB284-073/AS

Title: Effects of Interfacial Properties on Collection of Fine Particles by Wet Scrubbers
Author(s): G. J. Woffinden, G. R. Markowski, D. S. Ensor
Sponsoring Agency: Industrial Environmental Research Laboratory,
Research Triangle Park, NC
Project Officer: Dale L. Harmon No. Pages: 70
Performing Organization: Meteorology Research, Inc.

Abstract: The report gives results of an analysis of typical wet scrubber models to determine the effects of surface tension on particle removal efficiency.

EPA-600/7-78-098, NTIS-PB283-657/AS

Title: Particulate Control Mobile Test Units: Third Year's Operation
Author(s): Donald L. Zanders
Sponsoring Agency: Industrial Environmental Research Laboratory,
Research Triangle Park, NC
Project Officer: C. Victor Briscoe No. Pages: 40
Performing Organization: Monsanto Research Corporation

Abstract: The report summarizes the third year's operation of EPA-owned mobile test units. Unlike prior reports, detailed field test results are not included.

EPA-600/7-78-103, NTIS-PB285-678

Title: Portable Vacuum X-Ray Spectrometer, Instrument for On-Site Analysis of Airborne Particulate Sulfur and Other Elements
Author(s): J. V. Gilfrich, L. S. Birks
Sponsoring Agency: Environmental Sciences Research Laboratory,
Research Triangle Park, NC
Project Officer: Jack Wagman No. Pages: 28
Performing Organization: Naval Research Laboratory

Abstract: A portable vacuum wavelength-dispersive x-ray analyzer has been constructed for on-site measurement of the sulfur content of filter-deposited airborne particles.

EPA-600/7-78-104, NTIS-PB283-819/AS

Title: Investigation of Saturated Laser Fluorescence and CARS Spectroscopic Techniques for Combustion Diagnostics
Author(s): A. C. Eckbreth, P. A. Bonczyk, J. A. Shirley
Sponsoring Agency: Industrial Environmental Research Laboratory,
Research Triangle Park, NC
Project Officer: William B. Kuykendal No. Pages: 138
Performing Organization: United Technologies Research Center

Abstract: The report gives results of comparisons of saturated laser-excited molecular fluorescence measurements of CH and CN in atmospheric pressure acetylene flames with absorption measurements of these flame radicals.

EPA-600/7-78-105, NTIS-PB285-438

Title: Intercomparison of Plutonium - 239 Measurements
Author(s): Lee H. Ziegler
Sponsoring Agency: Environmental Monitoring and Support Laboratory,
Las Vegas, NV
Project Officer: Lee H. Ziegler No. Pages: 16
Performing Organization: Environmental Monitoring and Support Laboratory

Abstract: In 1977 the U.S. Environmental Protection Agency distributed calibrated solutions of plutonium-239 to laboratories interested in participating in an intercomparison study of plutonium analysis. Participants were asked to perform a quantitative radioactivity analysis of the solution. The results reported by all the participating laboratories are given here.

EPA-600/7-78-116, NTIS-PB285-765

Title: An Examination of Some Micrometeorological Methods for Measuring Dry Deposition
Author(s): Bruce B. Hicks, Marvin L. Wesely
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: J.L. Durham No. Pages: 25
Performing Organization: Radiological & Environmental Research Division

Abstract: The relative advantages and disadvantages of the experimental methods including aerodynamic, modified Bowen ratio, eddy correlation, variance, and eddy accumulation are discussed, with consideration being given to the sensor response time and accuracy.

EPA-600/7-78-118, NTIS-PB285-419

Title: Intercomparison of Samplers Used in the Determination of Aerosol Composition
Author(s): D. C. Camp, A. L. Van Lehn, B. L. Loo
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: T. G. Dzubay No. Pages: 140
Performing Organization: Lawrence Livermore Laboratory

Abstract: An intercomparison study was carried out to evaluate the performance of 11 different designs of aerosol samplers. The devices tested include hi-vol, TWO MASS, cyclone, CHAMP, streaker, stacked filter, and manual and automated dichotomous samplers.

EPA-600/7-78-122, NTIS-PB285-435

Title: Anion Exchange Method for the Determination of Plutonium in Water: Single-Laboratory Evaluation and Interlaboratory Collaborative Study
Author(s): C. T. Bishop, A. A. Glosby, R. Brown, C. A. Phillips
Sponsoring Agency: U.S. Environmental Protection Agency, Las Vegas, NV
Project Officer: E. W. Bretthauser No. Pages: 80
Performing Organization: Monsanto Research Corporation

Abstract: This report gives the results of a single-laboratory evaluation and an interlaboratory collaborative study of a method for determining plutonium in water.

EPA-600/7-78-125, NTIS-PB285-596

Title: Trace Organics Variation Across the Wastewater Treatment System of a Class-B Refinery
Author(s): Wyman Harrison
Sponsoring Agency: Office of Energy, Minerals, and Industry
Project Officer: C. Schafer No. Pages: 170
Performing Organization: Argonne National Laboratory

Abstract: Wastewater at SOHIO's Toledo refinery was sampled every 4 hours for 4 successive days in Dec., 1976. Effluents from the full-scale system unit and final clarifier for the activated sludge unit and an add-on pilot-scale unit were sampled for analysis of common wastewater parameters and trace organic compounds.

EPA-600/7-78-131, NTIS-PB284-332

Title: Performance of a High Velocity Pulse-Jet Filter
Author(s): David Leith, Melvin W. First, Dwight D. Gibson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: James H. Turner No. Pages: 60
Performing Organization: President and Fellows of Harvard College

Abstract: The report gives results of an economic analysis of pulse-jet filtraton. It shows that, if the device is operated continuously, the filtration velocity associated with least total annualized cost is about 3 cm/s (6 ft/m).

EPA-600/7-78-132a, NTIS-PB283-173/AS

Title: A Data Reduction System for Cascade Impactors
Author(s): J. D. McCain, G. I. Clinard, L. G. Felix, J. W. Johnson
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 25
Performing Organization: Southern Research Institute

Abstract: The report describes a computer-based data reduction system for cascade impactors. The system utilizes impactor-specific calibration information, together with operating conditions and other pertinent information (e.g., stage weights, sampling duration), to determine particle size distributions in several forms for individual runs.

EPA-600/7-78-136a, NTIS-PB285-172/AS

Title: Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site A
Author(s): J. E. Gabrielson, P. L. Langsjden, T. C. Kosvic
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. E. Hall
No. Pages: 105
Performing Organization: KVB, Inc.

Abstract: The report gives results of field measurements made on a 300,000 lb/hr spreader stoker boiler. The effect of various parameters on boiler emissions and efficiency was studied. Parameters studied included overfire air, flyash reinjection, excess air, boiler load, and fuel properties.

EPA-600/7-78-136b, NTIS-

Title: Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site A (Data Supplement)
Author(s): J. E. Gabrielson, P. L. Langsjoen, T. C. Kosvic
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: R. E. Hall
No. Pages: 278
Performing Organization: KVB, Inc.

Abstract: The supplement is a compilation of test data in greater detail than was practical in the final report. It provides details to other researchers who are interested in performing their own analysis.

EPA-600/7-78-137, NTIS-PB286-706

Title: Evaluation of the United States Geological Survey Laboratory, Atlanta, Georgia
Author(s): Robert L. Booth
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Cincinnati, OH
Project Officer: Robert L. Booth
No. Pages: 17
Performing Organization: Environmental Monitoring and Support Laboratory

Abstract: An on-site evaluation was made of the capabilities of the U.S. Geological Survey Laboratory at Atlanta, Georgia. Particular emphasis was placed on determining their ability to meet the monitoring requirements connected with their contractual efforts with the U.S. Environmental Protection Agency.

EPA-600/7-78-145, NTIS-PB286-571

Title: The Vertical Planar Motion Mechanism; A Dynamic Test Apparatus for Evaluating Current Meters and Other Marine Instrumentation
Author(s): A. N. Kalvaitis
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer:
Performing Organization: National Oceanic and Atmospheric Administration

Abstract: The overall objective was to provide a dynamic test apparatus that can produce known, controlled high frequency dynamics for the evaluation of current meters and other marine instrumentation. Of primary interest is the establishment of flow sensor measurement capabilities, and hence, data quality in an unsteady flow environment.

EPA-600/7-78-169, NTIS-PB288-367

Title: Evaluating the Sampling Frequencies of Water Quality Monitoring Networks
Author(s): Robert C. Ward, Knud Strange Nielsen
Sponsoring Agency: U.S. Environmental Protection Agency, Las Vegas, NV
Project Officer: Donald B. Gilmore No. Pages: 40
Performing Organization: Colorado State University

Abstract: Sampling frequency evaluation procedures presented utilize a number of simplifying assumptions and basic-statistical methods. Employing such an approach will facilitate use of these procedures and, therefore, set the stage for wider understanding and use of more sophisticated approaches that may be developed at a later date.

EPA-600/7-78-182, NTIS-PB287-181/AS

Title: Sensitized Fluorescence for the Detection of Polycyclic Aromatic Hydrocarbons
Author(s): E. M. Smith, P. L. Levins
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Larry D. Johnson No. Pages: 31
Performing Organization: Arthur D. Little, Inc.

Abstract: The report describes a fluorescent spot test, devised for polycyclic aromatic hydrocarbons (PAH), based on the sensitization of the inherent fluorescence of such compounds.

EPA-600/7-78-217, NTIS-PB290-347

Title: Development of a Sorbent Distribution and Recovery System
Author(s): Sidney H. Shaw, Richard P. Bishop, Robert J. Powers
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer:
No. Pages: 76
Performing Organization: Seaward International, Inc.

Abstract: This report describes the design, fabrication, and test of a prototype system for the recovery of spilled oil from the surface of river, estuarine, and harbor waters. The system utilizes an open cell polyurethane foam in small cubes to absorb the floating oil. The system is highly mobile and can be transported in two pickup trucks.

EPA-600/2-77-021, NTIS-PB271-656

Title: Alarm-Level Monitor for SO_2 Emissions from Stationary Sources
Author(s): Donald A. Wallace, Wayne Perkins
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: R. Rollins
No. Pages: 20
Performing Organization: International Biophysics Corporation

Abstract: A field prototype, alarm-level monitor for SO_2 emissions from stationary sources was designed, fabricated, and tested. The monitoring system is an extractive type that employs an air aspirator to pull a sample through a probe and sample conditioning assembly.

EPA-600/2-77-022, NTIS-PB268-550

Title: A Real-Time Measuring Device for Dense Particulate Systems
Author(s): P. W. Chan, C. Y. She, C. W. Ho, A. Tueton
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. B. Kuykendal
No. Pages: 78
Performing Organization: Colorado State University

Abstract: The report describes the design and performance of an instrument, based on the concept of instantaneous intensity ratio, for measuring particle size distributions of dense particulate matter.

EPA-600/2-77-026, NTIS-PB269-081

Title: Evaluation of Stationary Source Particulate Measurement Methods, Volume II Oil-Fired Steam Generators
Author(s): Edward T. Peters, Jeffrey W Adams
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: K.T. Knapp No. Pages: 66
Performing Organization: Arthur D. Little, Inc.

Abstract: An experimental study was conducted to determine the reliability of the Method 5 procedure for providing particulate emission data from an oil-fired steam generator.

EPA-600/7-77-024, NTIS-PB266-256

Title: Western Energy/Environment Monitoring Study Planning and Coordination Summary
Author(s): Gregory J. D'Alessio
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington D.C.
Project Officer: Gregory J. D'Alessio No. Pages: 22
Performing Organization: Energy Coordination Staff

Abstract: This report is a summary of the planning, coordination, and implementation mechanisms which provide the framework for the Western Energy/Environment Monitoring Study. This Study involves participation by elements of EPA, NASA, NOAA, and USGS and is a segment of the Interagency Energy/Environment Research and Development Program administered by EPA.

EPA-600/7-77-025, NTIS-PB269-945

Title: Field Investigations of Mechanical Draft Cooling Tower Plumes
Author(s): Lawrence D. Winiarski, Walter F. Frick
Sponsoring Agency: Corvallis Environmental Research Center, Corvallis, OR
Project Officer: Lawrence D. Winiarski No. Pages: 66
Performing Organization: Assessment & Criteria Development Division

Abstract: Tethered Kitoon (small blimp) sampling techniques were devised to measure the distribution of temperature and humidity in the invisible portion of power plant cooling tower plumes from both single cell and multiple cell cooling towers under several conditions.

EPA-600/7-77-036, NTIS-PB269-652

Title: Trace Analysis of Arsenic by Colorimetry, Atomic Absorption and Polarography
Author(s): Lyman H. Howe
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington D.C.
Project Officer: Gregory J. D'Alessio No. Pages: 43
Performing Organization: Tennessee Valley Authority

Abstract: A differential pulse polarographic method was developed for determining total arsenic concentrations in water samples from ash ponds at steam-electric generating plants.

EPA-600/7-77-043, NTIS-PB268-484/AS

Title: IERL-RTP Procedures Manual: Level 1 Environmental Assessment Biological Tests For Pilot Studies
Author(s): K. M. Duke, M. E. Davis, A. J. Dennis
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Larry D. Johnson
Performing Organization: Battelle-Columbus Laboratories

Abstract: The manual gives Level 1 biological testing procedures (recommended by Industrial Environmental Research Laboratory--Research Triangle Park) for personnel experienced in conducting bioassays on samples from industrial and energy producing processes. Level 1 is a screening phase that characterizes the pollutant potential of process influent and effluent streams.

EPA-600/7-77-047a, NTIS-

Title: Western Energy/Environment Monitoring Atlas
Author(s): Remote Sensing Division, Monitoring Operations Division
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Las Vegas, NV
Project Officer: R.W. Landers No. Pages: 34
Performing Organization: Environmental Monitoring and Support Laboratory

Abstract: The Western Energy "Atlas", which was prepared by Lockheed Electronics Co., Inc. will give policy makers at various levels a regional perspective of the impacts on media quality (air, land, and water) (level and extent) resulting from the pattern of energy dedicated land use. The purpose of the "Atlas" is to synthesize monitoring information into an integrated format wherein both the geographical pattern of sources and the geographical extent of media quality can be displayed.

EPA-600/7-77-047b, NTIS-

Title: Western Energy/Environment Monitoring Atlas: Overhead Monitoring Appendix
Author(s): Remote Sensing Division
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Las Vegas, NV
Project Officer:
Performing Organization: Environmental Monitoring and Support Laboratory

Abstract: The purpose of the Overhead Monitoring Appendix is to demonstrate current remote sensing techniques utilized in monitoring mining activities and reclamation efforts on surface-mined areas located in the western part of the United States.

EPA-600/7-77-058, NTIS-PB269-666/AS

Title: HP-25 Programmable Pocket Calculator Applied to Air Pollution Measurement Studies: Stationary Sources
Author(s): James W. Ragland, Kenneth M. Cushing, Joseph D. McCain, Wallace B. Smith
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 86
Performing Organization: Southern Research Institute

Abstract: The report should be useful to persons concerned with Air Pollution Measurement Studies of Stationary Industrial Sources. It gives detailed descriptions of 22 separate programs, written specifically for the Hewlett Packard Model HP-25 manually programmable pocket calculator.

EPA-600/7-77-066, NTIS-PB269-653/AS

Title: Review of Laser Raman and Fluorescence Techniques for Practical Combustion Diagnostics
Author(s): A. C. Eckbreth, P. A. Bonczyk, J. F. Verdieck
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: William B. Kuykendal No. Pages: 174
Performing Organization: United Technologies Research Center

Abstract: The report gives results of a detailed examination of four techniques for practical combustion diagnostics: spontaneous and near-resonant Raman scattering, laser fluorescence, and coherent anti-Stokes Raman scattering (CARS).

EPA-600/7-77-076, NTIS-PB273-153

Title: Aerosol Research Branch, Annual Report FY1976/76A, Federal Interagency Energy/Environment Research and Development Program
Author(s): W. E. Wilson, C. Danskin
Sponsoring Agency: Environmental Sciences Research Laboratory,
Research Triangle Park, NC
Project Officer: W. E. Wilson No. Pages:
Performing Organization: Environmental Sciences Research Laboratory

Abstract: The purpose of these projects is to study the chemical and physical properties of aerosols, identify the mechanisms of aerosol formation and removal, and conduct experiments to measure these rates.

EPA-600/7-77-078, NTIS-PB271-965

Title: Fusion Method for the Measurement of Plutonium in Soil: Single-Laboratory Evaluation and Interlaboratory Collaborative Test
Author(s): P. B. Hahn, E. W. Bretthauer, P. B. Altringer, N. F. Mathews
Sponsoring Agency: Environmental Monitoring and Support Laboratory,
Las Vegas, NV
Project Officer: P. B. Hahn No. Pages: 76
Performing Organization: Environmental Monitoring and Support Laboratory

Abstract: This report presents the results of a single-laboratory evaluation and an interlaboratory collaborative test of a method for measuring plutonium in soil.

EPA-600/7-77-079, NTIS-PB278-747

Title: Characterization of Emissions from Plutonium-Uranium Oxide Fuel Fabrication
Author(s): E. W. Bretthauer, A. J. Cummings, S. C. Black
Sponsoring Agency: Environmental Monitoring and Support Laboratory,
Las Vegas, NV
Project Officer: E. W. Bretthauer No. Pages: 78
Performing Organization: Environmental Monitoring and Support Laboratory

Abstract: To develop accurate monitoring techniques for the radioactive emissions from new types of nuclear facilities, it is necessary to characterize those emissons as completely as possible. In-stack, standard hi-vol, and special ultra-high volume air samplers were used to collect particulate samples at the Babcock and Wilcox plant in Parks Township, Pennsylvania.

EPA-600/7-77-082, NTIS-PB272-519

Title: Potential Radioactive Pollutants Resulting from Expanded Energy Programs
Author(s): Hong Lee, Thomas O. Peyton, Robert V. Steele, Ronald K. White
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Las Vegas, NV
Project Officer: A. N. Jarvis No. Pages: 142
Performing Organization: Center for Resource and Environmental Systems Studies, Stanford Research Institute

Abstract: The purpose of this document is to identify and document the potential radioactive pollutants that could result from the expanded energy program and for which quality assurance programs must be provided.

EPA-600/7-77-088, NTIS-PB277-254

Title: Handbook for Analytical Quality Control in Radioanalytical Laboratories
Author(s): L. G. Kanipe
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: R. M. Laska No. Pages: 110
Performing Organization: Tennessee Valley Authority

Abstract: Quality control in the radioanalytical laboratory is discussed. The discussion includes laboratory operating practices, analytical methodology, instrument quality control, and data handling and reporting.

EPA-600/7-77-089, NTIS-PB280-237

Title: Least-Squares Analysis of Gamma-Ray Spectra In Environmental Samples
Author(s): L. G. Kanipe, S. K. Seale, W. S. Liggett
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: R. M. Laska No. Pages: 50
Performing Organization: Tennessee Valley Authority

Abstract: The use of ALPHA-M, a least-squares computer program for analyzing NaI (Tl) gamma spectra of environmental samples, is evaluated.

EPA-600/7-77-099, NTIS-PB271-439

Title: Use of Potassium Ferrate in Oxygen Demand Measurement
Author(s): James D. Carr
Sponsoring Agency: Environmental Monitoring & Support Laboratory, Cincinnati, OH
Project Officer: J. F. Kopp No. Pages: 45
Performing Organization: Department of Chemistry, University of Nebraska

Abstract: This research project was initiated with the primary objective of improving the commonly used COD test by the use of ferrate(VI) ion as an alternate or preliminary oxidant.

EPA-600/7-77-100, NTIS-PB273-513

Title: Guide to Preselection of Training Samples and Ground Truth Collection
Author(s): Charles E. Tanner
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Las Vegas, NV
Project Officer: R. W. Landers No. Pages: 32
Performing Organization: Lockheed Electronics Company, Inc.

Abstract: This report was prepared to provide the novice data processing analyst and field personnel with the tools and basic concepts used in the processing of multispectral scanner data via an interactive or conventional processing system.

EPA-600/7-77-121, NTIS-

Title: Underway Water Sampling Systems-An Applications Study
Author(s): Ronald New, David Enabnit, Byron Kolitz
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: R. M. Laska
Performing Organization: Engineering Development Laboratory

Abstract: The Engineering Development Laboratory of the National Ocean Survey is developing a shipboard instrumentation system to make measurements of "energy-related" pollutants while the ship is underway. This study devises and describes applications of the UWSS that are pertinent to understanding the effects of energy-related pollutants in the marine environment.

EPA-600/7-77-128, NTIS-PB276-620

Title: Comparison of Wet Chemical and Instrumental Methods for Measuring Airborne Sulfate, Final Report
Author(s): B. R. Appel, E. L. Kothny, E. M. Hoffer, J. J. Wesolowski
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: C. R. Sawicki No. Pages: 178
Performing Organization: Air & Industrial Hygiene Laboratory, California Department of Health

Abstract: The methylthymol blue (MTB), modified Brosset, and barium chloranilate sulfate methods were evaluated for precision, accuracy, working range, interference effects, and degree of agreement with x-ray fluorescence analysis (XRF) using atmospheric particulate samples.

EPA-600/7-77-144, NTIS-PB277-377

Title: Quality Control for Environmental Measurements Using Gamma-Ray Spectrometry
Author(s): Lee H. Ziegler, Hiram M. Hunt
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Las Vegas, NV
Project Officer: Lee H. Ziegler No. Pages: 158
Performing Organization: Environmental Monitoring and Support Laboratory

Abstract: This report describes the quality control procedures, calibration, collection, analysis, and interpretation of data in measuring the activity of gamma ray-emitting radionuclides in environmental samples.

EPA-600/7-77-145, NTIS-PB279-615

Title: An Evaluation of Personal Sampling Pumps in Sub-Zero Temperatures
Author(s): Carl D. Parker, Martin B. Lee, Joan C. Sharpe
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: Gregory J. D'Allessio No. Pages: 123
Performing Organization: NIOSH, Cincinnati, Ohio

Abstract: Personal sampling pumps suitable for industrial hygiene surveys were evaluated to discover their characteristics as a function of temperature for temperatures between 25° and -50°C.

EPA-600/7-77-146, NTIS-

Title: A Feasibility Study of a Pocket-Sized Gas Chromatographic Air Analyzer
Author(s): Stephen C. Terry, John H. Jerman
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: Gregory J. D'Alessio No. Pages: 115
Performing Organization: NIOSH, Cincinnati, Ohio

Abstract: The feasibility of producing a pocket-sized air contaminant monitor based upon a miniature gas chromatograph and an integrated microcomputer has been demonstrated and a practical design for the instrument is presented.

EPA-600/7-77-147, NTIS-PB280-126

Title: Development and Fabrication of a Prototype Fibrous Aerosol Monitor (FAM)
Author(s): Pedro Lilienfeld, Paul B. Elterman
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: Gregory J. D'Alessio No. Pages: 81
Performing Organization: NIOSH, Cincinnati, Ohio

Abstract: This report describes a program whose objective was to develop, design, fabricate and laboratory-test two prototype instruments capable of real-time selective detection and measurement of airborne fibrous-shaped particles.

EPA-600/2-76-171, NTIS-PB258-868

Title: Evaluation of Monitoring Systems for Power Plant and Sulfur Recovery Plant Emissions
Author(s): Malbone W. Greene, Robert L. Chapman, Samuel C. Creason, R. Neal Harvey, Glen A. Heyman, William R. Pearson
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: James B. Homolya No. Pages: 202
Performing Organization: Beckman Instruments, Inc.

Abstract: This project was conducted to evaluate a number of commercially available extractive-type sampling and monitoring systems for monitoring sulfur dioxide and hydrogen sulfide source emissions. Evaluation Testing was performed at a Fossil-Fuel-Fired Power Plant and at a Claus Sulfur Recovery Plant to obtain representative ranges of stack gas temperature, water, and particulate loading, and concentrations of SO_2 and H_2S.

Transport and Fate

The transport processes area traces the transmission by air, water, and soil of pollutants emitted from energy operations from their sources to their destination in man and the environment. Additionally, it covers the physical and chemical changes that the pollutants undergo during their transport. Emphasis in air transport research is on conversion of sulfur and nitrogen oxides, chiefly from coal burning power plants, to sulfates and nitrates. Formation and transport of photochemical oxidants from various energy sources is also emphasized.

EPA-600/7-79-010b, NTIS-

Title: Power Plant Stack Plumes in Complex Terrain, Data Collected During an Aerometric Field Study
Author(s): Robert C. Koch, W. Gale Biggs, Douglas Cover, Harry Rector, Paul F. Stenberg, Kenneth E. Pickering
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer:
Performing Organization: GEOMET, Incorporated

Abstract: Air quality and meteorological data collected, processed, and edited during the Clinch River Power Plant Plume Study (June 1976 through September 1977) are contained on one magnetic tape.

EPA-600/7-79-036, NTIS-

Title: Strip Mine Drainage--Aquatic Impact Assessment
Author(s): D. B. Cox, R. P. Betson, W. C. Barr, J. B. Crossman, R. J. Ruane
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: No. Pages: 88
Performing Organization: Division of Environmental Planning, Tennessee Valley Authority

Abstract: The overall objective of this research program is to demonstrate methodologies for predicting, on the basis of characteristics of the site to be mined, the impact of strip mining on downstream biotic communities.

EPA-600/7-79-055, NTIS-

Title: MESOPAC: A Mesoscale Meteorology Package
Author(s): Carl W. Benkley, Arthur Bass
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: C. W. Hall No. Pages: 90
Performing Organization: Environmental Research & Technology, Inc.

Abstract: The MESOscale meteorology PACkage (MESOPAC) produces gridded fields of rectangular (u, v) wind components, mixing depth, and stability for use by mesoscale air pollution models. This report contains both a MESOPAC user's guide and the computer program listing.

EPA-600/7-79-084, NTIS-

Title: The Analysis of Suspended Particulates and Sulfates: A Way to Begin
Author(s): Walter Liggett, William Parkhurst
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: J. Stemnle No. Pages: 23
Performing Organization: Tennessee Valley Authority

Abstract: Total suspended particulate (TSP) and suspended sulfate (SS) levels have been sampled since November 1973 at five isolated sites across the Tennessee Valley. A method of beginning to analyze such data is demonstrated.

EPA-600/7-79-088, NTIS-

Title: Surface Reactions of Oxides of Sulfur
Author(s): J. H. Lunsford
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: J. L. Durham No. Pages: 42
Performing Organization: Texas A&M University

Abstract: Surface reactions of several sulfur-containing molecules have been studied in order to understand the mechanism by which sulfate ions are formed on atmospheric aerosols.

EPA-600/7-78-041, NTIS-PB280-198

Title: Pollutant Measurements in Plumes from Power Plants and Cities, Summer 1975, February 1976, and February 1977, A Project MISTT Report
Author(s): J. A. Ogren, D. L. Blumenthal, J. A. Anderson, W. H. White
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: W. E. Wilson, Jr. No. Pages: 61
Performing Organization: Meteorology Research, Inc.

Abstract: Airborne measurements of aerosols and polluted gases in urban and power plant plumes were conducted during the summer of 1975, February 1976, and February 1977 in the vicinity of St. Louis, Missouri; Moss Landing, California; and Clearwater, Florida.

EPA-600/7-78-066, NTIS-PB285-627

Title: A Review of Regional-Scale Air Quality Models for Long Distance Dispersion Modeling in the Four Corners Region
Author(s): John A. Nuber, Arthur Bass, Michael T. Mills, Charles S. Morris
Sponsoring Agency: Environmental Protection Agency, Office of Research and Development, Washington, D.C.
Project Officer: R. Laska No. Pages: 82
Performing Organization: Environmental Research & Technology, Inc.

Abstract: A review of available long-range air quality transport and diffusion models has been prepared to select, modify, and apply such a model for the simulation of air quality impact associated with emissions from new energy resource development in the Four Corners area of the western United States.

EPA-600/7-78-117, NTIS-PB284-905

Title: Analysis of Meteorological Conditions During the 1977 Anclote Keys-Plume Study
Author(s): L. Hull, W. Dannevik, R. Woodford
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: J. L. Durham No. Pages: 71
Performing Organization: Environmental Quality Research, Inc.

Abstract: The primary objective of the Plume Study was to investigate both the short and long range transport of power plant plumes and the formation rate of sulfate in a marine environment.

EPA-600/7-77-020, NTIS-PB266-098

Title: Power Plant Stack Plumes in Complex Terrain, An Appraisal of Current Research
Author(s): Robert C. Koch, W. Gale Biggs, Paul H. Hwang, Irving Leichter, Kenneth E. Pickering, Eric R. Swadey, John L. Swift
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: G. C. Holzworth
Performing Organization: GEOMET, Incorporated

Abstract: This report reviews the literature of scientific studies of the behavior of stack plumes from fossil-fueled electric power plants in complex (hilly or mountainous) terrain. Studies of SO_2 oxidation rates in power plant plumes are described and the primary mechanisms for conversion to sulfate are detailed.

EPA-600/7-77-021, NTIS-PB268-361

Title: Sulfates in the Atmosphere, A Progress Report on Project MISTT
Author(s): W. E. Wilson, R. J. Charlson, R. B. Husar, K. T. Whitby, D. Blumenthal
Sponsoring Agency: Environmental Sciences Research Laboratory,
Research Triangle Park, NC
Project Officer: W. E. Wilson No. Pages: 32
Performing Organization: Environmental Sciences Research Laboratory

Abstract: The size and sulfate content of atmospheric aerosols and the rate and mechanisms for sulfate formation from sulfur dioxide in power plant plumes are reviewed. Emphasis is given to recent USEPA studies (Project MISTT).

EPA-600/7-77-049, NTIS-PB269-576

Title: Ambient Hydrocarbon and Ozone Concentrations Near a Refinery
Author(s): H. H. Westberg, K. J. Allwine, E. Robinson
Sponsoring Agency: Environmental Sciences Research Laboratory,
Research Triangle Park, NC
Project Officer: Dr. Joseph J. Bufalini No. Pages: 105
Performing Organization: Air Resources Section, Chemical Engineering Department,
Washington State University

Abstract: In 1974, a study was undertaken to establish the effect of refinery emissions on the air quality of a region. The refinery studied was operated by Texaco in Lawrenceville, Illinois. Air sampling was conducted from a ground based trailer and from aircraft. Results showed that the plume was readily detectable as far as 25 miles downwind.

EPA-600/7-77-056, NTIS-PB269-559

Title: Hydrocarbon and Oxidant Chemistry Observed at a Site Near St. Louis
Author(s): R. A. Rasmussen, R. Chatfield, M. Holdren
Sponsoring Agency: Environmental Sciences Research Laboratory,
Research Triangle Park, NC
Project Officer: J. L. Durham No. Pages: 115
Performing Organization: Washington State University

Abstract: Integrated quantitative gas chromatographic measurements of the nearly one hundred individual hydrocarbons present in ambient air were made to determine the total non-methane organic burden at a midwest rural site in coordination with halocarbon, oxidant and local meteorological variables in July and August 1975.

EPA-600/7-77-113, NTIS-PB274-548

Title: Environmental Pathways of Selected Pollutants in Freshwater Systems
Part I: Background and Experimental Procedures
Author(s): J. H. Smith, W. R. Mabey, N. Bohonos, B. R. Holt, S. S. Lee, T-W. Chou, D. C. Bomberger, T. Mill
Sponsoring Agency: Environmental Research Laboratory, Athens, GA
Project Officer: No. Pages: 91
Performing Organization: Stanford Research Institute

Abstract: This research was initiated to develop environmental exposure assessment procedures that can be used to predict the pathways of potentially harmful chemicals in freshwater environments.

EPA-600/7-77-122, NTIS-PB276-985

Title: Experimental Air Exclusion System for Field Studies of SO_2 Effects on Crop Productivity
Author(s): H. C. Jones, N. L. Lacasse, W. S. Liggett, F. Weatherford
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer:
Performing Organization: Tennessee Valley Authority

Abstract: The Tennessee Valley Authority (TVA) characterized and quantified relationships among sulfur dioxide (SO_2) exposure, symptomatology of injury, and yield of soybean crops, which are sensitive to SO_2 and economically important to the southeastern United States.

Health Effects

The purpose of this activity is to provide a coordinated effort in the energy-related health effects research undertaken by the Department of Energy, National Institute of Environmental Health Sciences, National Institute of Occupational Safety and Health, and the Environmental Protection Agency with the funds made available to the Interagency Energy/Environment Program. The objective of this activity is the development of energy-related health data which will permit reliable estimates of risk to human health associated with increased development and utilization of domestic energy resources. The health effects program examines possible chronic toxic effects of pollutants, including respiratory effects and cancer production.

EPA-600/7-78-062, NTIS-PB283-023

Title: Measurement of Carcinogenic Vapors in Ambient Atmospheres, Final Report
Author(s): Edo D. Pelizzari
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: K. J. Krost No. Pages: 238
Performing Organization: Research Triangle Institute

Abstract: Analytical methods and instrumentation were evaluated for collecting and analyzing carcinogenic and mutagenic vapors occurring in ambient air.

EPA-600/7-78-123, NTIS-

Title: Effects of Methyl Methanesulfonate and Dimethylnitrosamine on Syrian Hamster Sperm
Author(s): Andrew J. Wyrobek
Sponsoring Agency: U.S. Department of Energy
Project Officer: G. Rausa
Performing Organization: Lawrence Livermore Laboratory

Abstract: The fraction of epididymal sperm with head shape abnormalities in mice increased with exposure to mutagens, carcinogens, and teratogens.

EPA-600/7-78-146, NTIS-PB285-227

Title: An Assessment of Mercury Emissions from Fossil Fueled Power Plants
Author(s): Paul Clifford, Gerald R. Goldgraben, Norman Zimmerman, Kit Krickenberger, Dennis Martin
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: R. Laska
Performing Organization: The MITRE Corporation

Abstract: The study has found no evidence of a health or environmental problem as a result of emissions of mercury from power plants. This conclusion has led to the recommendation that a specific control program to address mercury emissions from power plants is not necessary at this time.

EPA-600/7-77-028, NTIS-PB264-428

Title: National Plan for the Safety and Health of Divers in their Quest for Subsea Energy
Author(s): Charles W. Shilling, M.D., Marthew Beckett
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: R. Laska No. Pages: 545
Performing Organization: Undersea Medical Society Inc.

Abstract: Recommendations for improving the health and safety of divers are contained in fourteen biomedical topical chapters.

EPA-600/7-77-055, NTIS-PB269-582

Title: The Measurement of Carcinogenic Vapors in Ambient Atmospheres
Author(s): Edo D. Pellizzari
Sponsoring Agency: Environmental Sciences Research Laboratory, Research Triangle Park, NC
Project Officer: E. Sawicki No. Pages: 308
Performing Organization: Research Triangle Institute

Abstract: Analytical techniques and instrumentation, which has been developed during the previous contract years, were further evaluated for the collection and analysis of carcinogenic and mutagenic vapors occurring in ambient air.

EPA-600/7-77-112, NTIS-PB284-265

Title: Health Effects Related Research Summary, FY75-77
Author(s): J. Dorigan, H. Mahar
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: No. Pages: 70
Performing Organization: MITRE Corporation

Abstract: This document provides an overview of the health effects related component of the Interagency Program. The Discussion focuses on the overall principles and objectives of the research effort rather than a detailed discussion of the individual projects.

Ecological Effects

Research efforts develop the ecological data on freshwater, marine, estuarine and terrestrial ecosystems which will permit reliable estimates of the risk associated with accelerated development and utilization of domestic energy resources. This work is accomplished by the Department of Energy, Department of the Interior, National Institute of Environmental Health Sciences, National Oceanic and Atmospheric Administration, Tennessee Valley Authority, U.S. Department of Agriculture and the Environmental Protection Agency with funds made available to the Federal Interagency Energy/Environment Program. The various praticipating agencies have an array of technical expertise covering many disciplines.

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EPA-600/7-79-053, NTIS-

Title: Camp Branch and Camp Cross Experimental Watershed Projects: Objectives, Facilities, and Ecological Characteristics
Author(s): J. M. Kelly
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: C. W. Hall No. Pages: 141
Performing Organization: Tennessee Valley Authority

Abstract: Small experimental watersheds in the eastern United States, which define practical ecosystems, are used to study and evaluate (1) the impact of anthropogenic emissions on individual ecosystem processes and (2) the integrated response of the total system.

EPA-600/7-78-040, NTIS-PB283-401

Title: Washington State Refineries: Petroleum, Petroleum Derivatives and Wastewater Effluent Characteristics
Author(s): Joseph T. Pizzo, Gary W. Harshman, Thomas L. Johnson
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: C. W. Hall No. Pages: 335
Performing Organization: Oceanographic Institute of Washington

Abstract: This report presents the results of a study of wastewater effluent characteristics of refineries in Washington State, compiled for NOAA as part of an Environmental Assessment of Northern Puget Sound and the Strait of Juan de Fuca.

EPA-600/7-78-064, NTIS-

Title: Investigations of Soils and Vegetative Damage: Vicinity of Hartsfield, Atlanta's International Airport--Mountain View, GA
Author(s): K. W. Brown, G. B. Wiersma, N. E. Hester
Sponsoring Agency: Environmental Monitoring and Support Laboratory, Las Vegas, NV
Project Officer: K. W. Brown No. Pages: 108
Performing Organization: Environmental Monitoring and Support Laboratory

Abstract: Preliminary field investigations in the fall of 1975 reported widespread plant damage in Mountain View, Georgia, underneath the flight patterns of aircraft at Atlanta International Airport. EPA, Region IV requested an investigation to determine the extent, source and cause of this damage.

EPA-600/7-78-074, NTIS-PB288-511

Title: Environmental Pathways Of Selected Chemicals In Freshwater Systems Part II: Laboratory Studies
Author(s): J. H. Smith, W. R. Mabey, N. Bohonos, B. R. Holt, S. S. Lee, T-W. Chou, D. C. Bomberger, T. Mill
Sponsoring Agency: Environmental Research Laboratory, Athens, GA
Project Officer: G. L. Baughman No. Pages: 431
Performing Organization: SRI International

Abstract: Environmental exposure assessment models and laboratory procedures for predicting the pathways of potentially harmful chemicals in freshwater environments were described in Part I of this report (EPA-600/7-77-113). This second part of the project report describes the successful application of these procedures to 11 chemicals of environmental interest.

EPA-600/7-78-108, NTIS-PB285-440

Title: Environmental Effects of Increased Coal Utilization: Ecological Effects of Gaseous Emissions from Coal Combustion
Author(s): Norman R. Glass
Sponsoring Agency: Office of Health and Ecological Effects, Washington, D.C.
Project Officer: No. Pages: 50
Performing Organization: Corvallis Environmental Research Laboratory

Abstract: This report is provided for the "Health and Environmental Effects of Coal Utilization" Committee (Dr. David Rall, Chairman) which was created by the request of the DOE in response to the President's Environmental Message. It evaluates ecological and environmental effects of gaseous emissions and aerosols of various types which result from coal combustion.

EPA-600/7-78-126, NTIS-PB288-791

Title: Seasonal Distribution, Trajectory Studies, and Sorption Characteristics of Suspended Particulate Matter in the Northern Puget Sound Region
Author(s): Edward T. Baker, Joel D. Cline, Richard A. Feely, Joyce Quan
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: C. W. Hall No. Pages: 143
Performing Organization: Pacific Marine Environmental Laboratory

Abstract: With the development of petroleum and natural gas reserves in Alaska, the waters of northern Puget Sound and the Strait of Juan de Fuca have become major transportation routes through which Alaskan petroleums are delivered to Washington State. This study focuses on the spatial and seasonal distributions of suspended particulate matter and its adsorption characteristics relative to Alaskan crude oils.

EPA-600/7-78-127, NTIS-

Title: A Case Study of the Fish and Wildlife Aspects of the Pre-Permit and Construction Phases of the Trans-Alaska Oil Pipeline
Author(s): Thomas A. Morehouse, Robert A. Childers, Linda E. Leask
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: C. W. Hall No. Pages: 300
Performing Organization: U. S. Department of Interior

Abstract: "A Case Study of the Fish and Wildlife Aspects of the Pre-Permit and Construction Phases of the Trans-Alaska Oil Pipeline" looks at how government agencies developed standards for protecting fish and wildlife along the proposed pipeline route before construction and how the organization that was established to safeguard those resources worked during construction.

EPA-600/7-78-181, NTIS-

Title: Assessment of Coal Conversion Wastewaters: Characterization and Preliminary Biotreatability
Author(s): P. C. Singer, F. K. Pfaender, J. Chinchilli, A. F. Maciorowski, J. C. Lamb, III, R. Goodman
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: W. J. Rhodes No. Pages: 140
Performing Organization: University of North Carolina, Dept. of Environmental Sciences and Engineering

Abstract: The report gives results of the first phase of a project to assess the environmental impact of coal conversion wastewaters and to evaluate, by bench-scale tests, alternative treatment methods.

EPA-600/2-77-082, NTIS-PB265-041

Title: Coal and the Environment Abstract Series, Mine Drainage Bibliography 1910-1976
Author(s): V. E. Gleason, H. H. Russell
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: R. D. Hill No. Pages: 297
Performing Organization: Bituminous Coal Research, Inc.

Abstract: The Coal Mine Drainage Bibliography covers the following areas: surface and underground mines, active and abandoned mines, reclaimed surface mines, and planning of new mines. In addition this volume includes an Author Index and a General Index.

EPA-600/2-77-199, NTIS-PB274-369

Title: Sampling and Modeling of Non-Point Sources at a Coal-Fired Utility
Author(s): Gordon T. Brookman
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: D. Bruce Harris No. Pages: 275
Performing Organization: TRC--The Research Corporation of New England

Abstract: The report gives results of a measurement and modeling program for non-point sources (NPS) from two coal-fired utility plants, and the impact of NPS on receiving waters.

EPA-600/7-77-030, NTIS-PB266-269/AS

Title: Alternatives to Chlorination for Control of Condenser Tube Bio-Fouling
Author(s): H. H. S. Yu, G. A. Richardson, W. H. Hedley
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Fred Roberts
Performing Organization: Monsanto Research Corporation

Abstract: The report gives results of a study of methods used to reduce free-chlorine residuals in power plant effluents. The report considers viable alternatives to current chlorination practices used to decrease passage of ecologically harmful effluents to receiving waters.

EPA-600/7-77-048, NTIS-PB266-923

Title: Environmental Effects of Energy-Abstracts of Selected Projects Supported by EPA Funds
Author(s): Philip L. Johnson
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: C. W. Hall No. Pages: 184
Performing Organization: Oak Ridge Associated Universities

Abstract: This report contains project abstracts prepared for an Environmental Effects of Energy Conference held at Savannah, GA, on December 2 and 3, 1976, to review two segments of the Environmental Protection Agency's interagency energy/environment program: ecological effects and environmental transport processes.

EPA-600/7-77-053, NTIS-PB271-968/AS

Title: Bromine Chloride--An Alternative to Chlorine for Fouling Control in Condenser Cooling Systems
Author(s): Leonard H. Bongers, Thomas T. O'Conner, Dennis T. Burton
Sponsoring Agency: Industrial Environmental Research Laboratory, Research Triangle Park, NC
Project Officer: Fred Roberts No. Pages: 200
Performing Organization: Martin Marietta Corporation

Abstract: The report gives results of a comparison of bromine chloride and chlorine for fouling control in condenser cooling systems, by evaluating their decay rate in estuarine cooling water and their fouling control effectiveness. The program was conducted at an 1100-MWe, fossil-fueled, two-unit generating facility using estuarine water for once-through cooling.

EPA-600/7-77-093, NTIS-PB272-678

Title: Reclamation of Surface Mined Coal Spoils
Author(s): Richard I. Barnhisel
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: R. D. Hill No. Pages: 67
Performing Organization: University of Kentucky

Abstract: A project was conducted to demonstrate the effect of tillage including: subsoiling or ripping, disking, chisel plowing as a means of creating a rough micro-relief as compared to smooth graded surface mined coal spoils. It was found that when the surface was rough, increased plant growth occurred at all levels of applied phosphorus.

EPA-600/7-77-097, NTIS-PB273-675

Title: Production Cycles in Aquatic Microcosms
Author(s): A. Jassby, M. Dudzik, J. Rees, E. Lapan, D. Levy, J. Harte
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: Walter Preston No. Pages: 46
Performing Organization: Lawrence Berkeley Laboratory, ERDA

Abstract: Four 700-liter cylindrical containers were filled with demineralized water, enriched with nutrients, and inoculated with 3.5-liter lakewater samples. The microcosms were maintained at a temperature of 18°C under a 12:12 L:D cycle for 6 months and several manipulations of their trophic structure were carried out.

EPA-600/7-77-098, NTIS-PB274-591

Title: Petroleum Hydrocarbon Baseline Investigation for Northern Puget Sound and the Strait of Juan de Fuca
Author(s): William D. MacLeod Jr., Donald W. Brown, Rand G. Jenkins, L. Scott Ramos, Victor D. Henry
Sponsoring Agency: Office of Energy, Minerals, & Industry, Washington, D.C.
Project Officer: No. Pages: 61
Performing Organization: NOAA National Analytical Facility

Abstract: Hydrocarbon baseline data are needed to assess the potential impact of oil contamination from increased tanker traffic in the Strait of Juan de Fuca. Initial studies were directed to intertidal sediments, mussels and snails from two physically similar areas: Port Angeles, WA and Dungenes Bay, WA.

EPA-600/2-76-112, NTIS-PB264-112

Title: Resources Allocation to Optimize Mining Pollution Control
Author(s): Kenesaw S. Shumate, E. E. Smith, Vincent T. Ricca, Gordon M. Clark
Sponsoring Agency: Industrial Environmental Research Laboratory, Cincinnati, OH
Project Officer: E. F. Harris No. Pages: 493
Performing Organization: The Ohio State University Research Foundation

Abstract: A comprehensive model for mine drainage simulation and optimization of resource allocation to control mine acid pollution in a watershed has been developed. The model is comprehensive and may, therefore, be more detailed than required.

Decision Series Publications

In an area as crucial and timely as energy-related environmental research, there are two key communications links which must be formed in order to make the Interagency Program efforts both relevant and more efficient. The first link is within the research community itself; the second is between that community and the policy level decisionmakers and interested public.

Communicating with the research community is the cornerstone of EPA's Interagency Energy/Environment Research and Development Program. In such a broad area as the health and environmental effects of energy systems, the problem of coordination is a real challenge. Through reports, seminars, and conferences, the Interagency Program brings together the key participants in various aspects of energy/environment research and development. Such direct contact is an effective way to coordinate the Federal research effort and to avoid unnecessary duplication of, or misdirection of, research.

One way to advance the research is to improve information transfer between the technical community, the decisionmakers, and the public. It is the responsibility of the technical community to ensure that the policymakers and concerned citizens are provided with enough information to be able to make intelligent decisions that will then guide further research efforts. It is our responsibility to provide that information in a form which can easily be understood by the intended audience. This is the over-riding philosophy of EPA's Interagency Program.

For these reasons, the Energy/Environment R&D "Decision Series" was inaugurated late in 1976. The series presents selected key issues and findings of the Federal Interagency Energy/Environment R&D Program.

The following is a listing of the "Decision Series" reports, together with selected special reports produced under the auspices of the Interagency Program.

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Decision Series Publications

Interagency Energy/Environment Program R&D Program. Office of Energy, Minerals and Industry, March 1977. EPA-600/7-77-007. 20 pages.

An Experiment in Zero-Base Budget Analysis - Fiscal Year 1978. Congressional Budget Office and Office of Energy, Minerals and Industry. March 1977. EPA-600/9-77-009. 178 pages.

Interagency Energy/Environment R&D Program - Status Report III. Office of Energy, Minerals and Industry. April 1977. EPA-600/7-77-032. 59 pages.

A Summary of Accidents Related to Non-Nuclear Energy. K. Krickenberger. May 1977. EPA-600/9-77-012. 11 pages.

Western Energy Resources and the Environment: Geothermal Energy. Office of Energy, Minerals and Industry. May 1977. EPA-600/9-77-010. 103 pages.

Advanced Fossil Fuels and the Environment. P. Dorset, D. Myers and T. Parker. June 1977. EPA-600/9-77-013. 23 pages.

Coal Cleaning with Scrubbing for Sulfur Control: An Engineering Economic Summary. E. C. Holt, Jr. and A. W. Deurbrouck. August 1977. EPA-600/9-7-017. 16 pages.

Appalachian Mineral Resource Development: Environmental Factors. S. J. Gage and J. B. Truett. August 1977. EPA-600/9-77-018. 11 pages.

Alaskan Oil Transportation Issues. R. D. Brown and R. M. Helfand. October 1977. EPA-600/9-77-019. 11 pages.

Energy from the West: A Progess Report. Science and Public Policy Program - University of Oklahoma and Radian Corporation. October 1977. EPA-600/9-77-032. 12 pages.

Oil Shale and the Environment. D. Myers, P. Dorset, and T. Parker. October 1977. EPA-600/9-77-033. 29 pages.

Energy/Environment II. Proceedings of the Second National Conference on the Interagency R&D Program. November 1977. EPA-600/9-77-025. 563 pages.

Energy/Environment Fact Book. Office of Energy, Minerals and Industry and Department of Energy. December 1977. EPA-600/9-77-041. 76 pages.

Energy/Environment III. Proceedings of the Third National Conference on the Interagency Energy/Environment R&D Program. October 1978. EPA-600/9-78-022. 386 pages.

Sulfur Emission-Control Technology and Waste Management. Charles R. Beek. June 1979. EPA-600/9-79-019. 33 pages.

A Small Oil Spill at West Falmouth. Office of Energy, Minerals and Industry. March 1979. EPA-600/9-79-007. 28 pages.

Who's Who V - Interagency Energy/Environment R&D Program Directory and Index. Office of Energy, Minerals and Industry. June 1979. EPA-600/9-79-017. 76 pages.

Fiscal Year 1977 Research Program Abstracts of the Interagency Energy/Environment Program. Office of Energy, Minerals and Industry. June 1979. EPA-600/9-79-016. 185 pages.

Bibliography of the Interagency Energy/Environment R&D Program. Office of Energy, Minerals and Industry. June 1979. EPA-600/9-79-015. 150 pages.

Special Publications

The Section II Hearings. Office of Energy, Minerals and Industry. December 1978. EPA-600/9-78-041. 40 pages.

Federal Non-Nuclear Energy R&D Program. Office of Energy, Minerals and Industry. July 1978. EPA-600/9-78-023. 482 pages.

Title Index

	Pg. No.
Acid Mine Drainage and Subsidence: Effects of Increased Coal Utilization. Ronald D. Hill. EPA-600/2-78-068.	45
Advances in Particle Sampling and Measurement (Asheville, NC, May 1978). W. B. Smith. EPA-600/7-79-065.	153
Aerosol Research Branch, Annual Report FY1976/76A, Federal Interagency Energy/Environment Research and Development Program. W. E. Wilson. EPA-600/7-77-076.	202
Airborne Monitoring of Cooling Tower Effluents - Vol I: Technical Summary. George J. Woffinden. EPA-600/7-78-079.	190
Air, Water, and Solid Residue Prioritization Models for Conventional Combustion Sources. E. C. Eimutis. EPA-600/2-76-176.	97
Advanced Oil Processing/Utilization Environmental Engineering: EPA Program Status Report. P. P. Turner. EPA-600/7-78-077.	12
Alarm-Level Monitor for SO_2 Emissions from Stationary Sources. Donald A. Wallace. EPA-600/2-77-021.	198
Alternatives to Calcium-Based SO_2 Sorbents for Fluidized-Bed Combustion: Conceptual Evaluation. Richard A. Newby. EPA-600/7-78-005.	11
Alternatives to Chlorination for Control of Condenser Tube Bio-Fouling. H. H. S. Yu. EPA-600/7-77-030.	221
Ambient Hydrocarbon and Ozone Concentrations Near a Refinery. H. H. Westberg. EPA-600/7-77-049.	211
Ammonia Absorption/Ammonium Bisulfate Regeneration Pilot Plant for Flue Gas Desulfurization. P. C. Williamson. EPA-600/2-77-149.	121
Analysis of Cascade Impactor Data for Calculating Particle Penetration. Phil A. Lawless. EPA-600/7-78-189.	165
Analyses of Grab Samples from Fixed-Bed Coal Gasification Processes. Karl J. Bombaugh. EPA-600/7-77-141.	37
Analysis of Meteorological Conditions During the 1977 Anclote Keys-Plume Study. L. Hull. EPA-600/7-78-117.	210

Preceding page blank

Pg. No.

Analysis for Radionuclides in SRC and Coal Combustion Samples. Pamela A. Koester. EPA-600/7-78-185. 32

Analysis and Simulation of Recycle SO_2-Lime Slurry in TCA Scrubber System. C. Y. Wen. EPA-600/7-77-026. 76

The Analysis of Suspended Particulates and Sulfates: A Way to Begin. Walter Liggett. EPA-600/7-79-084. 209

Anion Exchange Method for the Determination of Plutionium in Water: Single-Laboratory Evaluation and Interlaboratory Collaborative Study. C. T. Bishop. EPA-600/7-78-122. 194

Apitron Electrostatically Augmented Fabric Filter Evaluation. Larry G. Felix. EPA-600/7-79-070. 153

Applicability of NO_x Combustion Modifications to Cyclone Boilers (Furnaces). T. E. Ctvrtnicek. EPA-600/7-77-006. 141

Applicability of the Thermal $DeNO_x$ Process to Coal-Fired Utility Boilers. G. M. Varga. EPA-600/7-79-079. 133

Application of Combustion Modifications to Industrial Combustion Equipment (Data Supplement A). K. T. Fisher. EPA-600/7-79-015b. 132

Application of Computer Graphics to Environmental Assessment of Energy Systems. Malcolm C. Babb. EPA-600/7-78-076. 87

Application of Foam Scrubbing to Fine Particle Control, Phase II. T. E. Ctvrtnicek. EPA-600/2-77-110. 167

Application of Fluidized-Bed Technology to Industrial Boilers. M. H. Farmer. EPA-600/7-77-011. 13

Application of Germanium Detectors to Environmental Monitoring. D. W. Nix. EPA-600/7-79-054. 185

Applicability of Petroleum Refinery Control Technologies to Coal Conversion. M. Ghassemi. EPA-600/7-78-190. 33

Applying Fabric Filtration to Refuse-Fired Boilers: A Pilot-Scale Investigation. J. D. McKenna. EPA-600/7-78-078. 101

Approach to Level 2 Analysis Based on Level 1 Results, MEG Categories and Compounds, and Decision Criteria. L. E. Ryan. EPA-600/7-79-063a. 86

Assessment of Coal Cleaning Technology: First Annual Report. Lee C. McCandless. EPA-600/7-78-150. 24

Assessment of Coal Cleaning Technology: An Evaluation of Chemical Coal Cleaning Processes. G. Y. Cantes. EPA-600/7-78-173a. 24

Pg. No.

Assessment of Coal Conversion Wastewaters: Characterization and Preliminary Biotreatability. P. C. Singer. EPA-600/7-78-181. 220

Assessment of Environmental Aspects of Uranium Mining and Milling. A. K. Reed. EPA-600/7-76-036. 53

Assessment of Large-Scale Photovoltaic Materials Production. M. G. Gandel. EPA-600/7-77-087. 104

An Assessment of Mercury Emissions from Fossil Fueled Power Plants. Paul Clifford. EPA-600/7-78-146. 214

Assessment of Technology for Control of Toxic Effluents from the Electric Utility Industry. J. D. Colley. EPA-600/7-78-090. 88

Atmospheric Chemistry of Potential Emissions From Fuel Conversion Facilities, A Smog Chamber Study. J. E. Sickles. EPA-600/7-78-029. 189

Atmospheric Pollution Potential from Fossil Fuel Resource Extraction, On-Site Processing and Transportation. E. C. Cavanaugh. EPA-600/2-76-064. 55

Bromine Chloride--An Alternative to Chlorine for Fouling Control in Condenser Cooling Systems. Leonard H. Bongers. EPA-600/7-77-053. 222

Burner Design Criteria for NO_x Control from Low-Btu Gas Combustion; Volume I. Ambient Fuel Temperature. Donald R. Shoffstall. EPA-600/7-77-094a. 141

Burner Design Criteria for Control of NO_x from Natural Gas Combustion; Volume I. Data Analysis and Summary of Conclusions. D. R. Shoffstall. EPA-600/2-76-098a. 145

Burner Design Criteria for Control of NO_x from Natural Gas Combustion; Volume II. Raw Data and Experimental Results. D. R. Shoffstall. EPA-600/2-76-098b. 146

Burner Design Criteria for NO_x Control from Low-Btu Gas Combustion; Volume II. Elevated Fuel Temperature. Donald R. Shoffstall. EPA-600/7-77-094b. 141

Burner Criteria for NO_x Control; Volume I. Influence of Burner Variables on NO_x in Pulverized Coal Flames. M. P. Heap. EPA-600/2-76-061a. 144

Camp Branch and Camp Cross Experimental Watershed Projects: Objectives, Facilities, and Ecological Characteristics. J. M. Kelly. EPA-600/7-79-053. 218

A Case Study of the Fish and Wildlife Aspects of the Pre-Permit and Construction Phases of the Trans-Alaska Oil Pipeline. Thomas A. Morehouse. EPA-600/7-78-127. 220

Pg. No.

Catalyst Evaluation for Denitrogenation of Petroleum Residua and Coal Liquids. Cecelia C. Kang. EPA-600/7-78-159. 76

Catalytic Oxidation of Fuels for NO_x Control from Area Sources. J. P. Kesselring. EPA-600/2-76-037. 144

Catalytic Reduction of Nitrogen Oxides with Ammonia: Utility Pilot Plant Operation. J. M. Kline. EPA-600/7-76-031. 147

Catawissa Creek Mine Drainage Abatement Project. A. F. Miorin. EPA-600/7-77-124. 55

CEA Variable-Throat Venturi Scrubber Evaluation. Joseph D. McCain. EPA-600/7-78-094. 192

Century Industrial Products FRP-100 Wet Scrubber Evaluation. D. S. Ensor. EPA-600/7-77-116. 126

Characterization of Ash from Coal-Fired Power Plants. S. S. Ray. EPA-600/7-77-010. 170

Characterization of Carbide Lime to Identify Sulfite Oxidation Inhibitors. L. J. Holcombe. EPA-600/7-78-176. 121

Characterization of Coal Pile Drainage. Doye B. Cox. EPA-600/7-79-051. 20

Characterization of Emissions from Plutonium-Uranium Oxide Fuel Fabrication. E. W. Bretthauer. EPA-600/7-77-079. 202

Characterization of the EPA/IERL-RTP Pilot-Scale Precipitator. P. A. Lawless. EPA-600/7-79-052. 153

Characterization and Generation of Metal Aerosols. Neil Zimmerman. EPA-600/7-78-013. 188

Characterization of Solid Residues from Fluidized-Bed Combustion Units. James L. Crowe. EPA-600/7-78-135. 12

Characterization of Sorbent Resins for Use in Environmental Sampling. R. F. Gallant. EPA-600/7-78-054. 190

Chemically Active Fluid-Bed Process for Sulphur Removal During Gasification of Heavy Fuel Oil--Fourth Phase. A. W. Ramsden. EPA-600/7-79-066. 10

Chemically Active Fluid Bed (CAFB) Process Solids-Transport Studies. John A. Bazan. EPA-600/7-77-114. 16

Chemistry of Fuel Nitrogen Conversion to Nitrogen Oxides in Combustion. A. E. Axworthy. EPA-600/2-76-039. 144

Pg. No.

Cleanup Efficiency and Biological Effects of a Fuel Oil Spill in Cold Weather: The 1977 Bouchard No. 65 Oil Spill in Buzzards Bay, Massachusetts. Eric Schrier. EPA-600/7-78-133. 49

Coal Desulfurization Using Microwave Energy. Peter Zavitsanos. EPA-600/7-78-089. 119

Coal and the Environment Abstract Series, Mine Drainage Bibliography 1910-1976. V. E. Gleason. EPA-600/2-77-082. 220

Coal Preparation Environmental Engineering Manual. David C. Nunenkamp. EPA-600/2-76-138. 26

Combustion Additives for Pollution Control-A State-of-the-Art Review. H. H. Krause. EPA-600/2-77-008a. 91

Combustion of Hydrothermally Treated Coals. E. P. Stambaugh. EPA-600/7-78-068. 23

Combustion Modification Effects on NO$_x$ Emissions from Gas-, Oil-, and Coal-Fired Utility Boilers. Owen W. Dykema. EPA-600/2-78-217. 133

Combustion Research on Characterization of Particulate Organic Matter from Flames. R. A. Hites. EPA-600/7-78-167. 163

Combustion Research on the Fate of Fuel-Nitrogen Under Conditions of Pulverized Coal Combustion. J. M. Levy. EPA-600/7-78-165. 137

Compact, In-Stack, Three Size Cut Particule Classifier. George E. Lacey. EPA-600/7-77-033. 172

Comparative Assessment of Trace Metals from Coal- Versus Oil-Firing in a Controlled Industrial Boiler. C. Y. Ung. EPA-600/7-79-042. 151

Comparison of Fossil and Wood Fuels. E. H. Hall. EPA-600/2-76-056. 96

Comparison of Wet Chemical and Instrumental Methods for Measuring Airborne Sulfate, Final Report. B. R. Appel. EPA-600/7-77-128. 204

Compendium Reports on Oil Shale Technology. G. C. Slawson. EPA-600/7-79-039. 184

A Computer-Based Cascade Impactor Data Reduction System. J. W. Johnson. EPA-600/7-78-042. 157

Computer Processing Results of Scanner Data Over Selected Coal Strip Mines. Charles E. Tanner. EPA-600/7-79-080. 187

Conference on Particulate Collection Problems in Converting to Low Sulfur Coals. G. B. Nichols. EPA-600/7-76-016. 180

Pg. No.

Continuous Reading Lidar Technique for Measuring Plume Opacity. Dilip G. Saraf. EPA-600/2-79-023. 184

Control of Utility Boiler and Gas Turbine Pollutant Emissions by Combustion Modification--Phase I. A. R. Crawford. EPA-600/7-78-036a. 134

Control of Waste and Water Pollution From Power Plant Flue Gas Cleaning Systems: First Annual R and D Report. P. P. Leo. EPA-600/7-76-018. 80

Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Solid Waste Impact (Volume I. Executive Summary). P. P. Leo. EPA-600/7-78-044a. 114

Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Water Pollution Impact (Volume I. Executive Summary). R. L. Sugarek. EPA-600/7-78-045a. 114

Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Solid Waste Impact (Volume II. Technical Discussion). P. P. Leo. EPA-600/7-78-044b. 114

Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Water Pollution Impact (Volume II. Technical Discussion). R. L. Sugarek. EPA-600/7-78-045b. 115

Conventional Combustion Environmental Assessment Program: First Annual Report. J. Bruce Truett. EPA-600/7-78-138. 136

Critical Evaluation of Differential Pulse Polarography for Determining Chromium(III) and CHROMIUM(VI) In Water Samples. Lyman H. Howe. EPA-600/7-79-086. 187

Data Base for Standards/Regulations Development for Land Disposal of Flue Gas Cleaning Sludges. Dallas E. Weaver. EPA-600/7-77-118. 78

A Data Reduction System for Cascade Impactors. J. D. McCain. EPA-600/7-78-132a. 195

Demetallization Catalyst Tests on Heavy Residual Oils. V. V. Manshilin. EPA-600/7-78-119. 75

Demonstration/Evaluation of the Cat-Ox Flue Gas Desulfurization System--Final Report. R. Bee. EPA-600/2-78-063. 43

Demonstration of Wellman-Lord/Allied Chemical FGD Technology: Boiler Operating Characteristics. R. C. Adams. EPA-600/7-77-014. 122

Design and Construction of a Fluidized-Bed Combustion Sampling and Analytical Test Rig. H. Dehne. EPA-600/7-78-166. 13

Design Optimization and Field Verification of an Integrated Residential Furnace--Phase I. A. S. Okuda. EPA-600/7-79-037a. 132

Pg. No.

Determination of Zinc, Cadmium, Lead, and Copper in Water by Anodic Stripping Voltammetry. Lyman H. Howe. EPA-600/7-78-075. 190

Development and Fabrication of a Prototype Fibrous Aerosol Monitor (FAM). Pedro Lilienfeld. EPA-600/7-77-147. 205

Development of a High-Temperature/High-Pressure Electrostatic Precipitator. J. R. Bush. EPA-600/7-77-132. 177

Development and Laboratory Evaluation of a Five-Stage Cyclone System. Wallace B. Smith. EPA-600/7-78-008. 188

Development of a Mathematical Basis for Relating Sludge Properties to FGD-Scrubber Operating Variables. J. L. Phillips. EPA-600/7-78-072. 74

Development of a Sorbent Distribution and Recovery System. Sidney H. Shaw. EPA-600/7-78-217. 198

Development Status and Environmental Hazards of Several Advanced Energy Systems. Morris Penny. EPA-600/7-77-062. 103

Disposal of By-Products From Nonregenerable Flue Gas Desulfurization Systems: Second Progress Report. J. Rossoff. EPA-600/7-77-052. 77

Disposal of By-Products from Non-Regenerable Flue Gas Desulfurization Systems: Final Report. J. Rossoff. EPA-600/7-79-046. 110

Disposal of Flue Gas Cleaning Wastes: EPA Shawnee Field Evaluation-Initial Report. R. B. Fling. EPA-600/2-76-070. 80

Disposal of Flue Gas Cleaning Wastes: EPA Shawnee Field Evaluation--Second Annual Report. R. B. Fling. EPA-600/7-78-024. 111

Disposal of Solid Residue From Fluidized-Bed Combustion: Engineering and Laboratory Studies. C. C. Sun. EPA-600/7-78-049. 72

Economics of Disposal of Lime/Limestone Scrubbing Wastes: Untreated and Chemically Treated Wastes. J. W. Barrier. EPA-600/7-78-023a. 111

Economics of Disposal of Lime/Limestone Scrubbing Wastes: Sluge/Flyash Blending and Gypsum Systems. J. W. Barrier. EPA-600/7-79-069. 70

The Effect of Flue Gas Desulfurization Availability on Electric Utilities Volume I. Executive Summary. R. D. Delleney. EPA-600/7-78-031a. 112

The Effect of Flue Gas Desulfurization Availability on Electric Utilities Volume II. Technical Report. R. D. Delleney. EPA-600/7-78-031b. 112

Effect of Handling Procedures on Sample Quality. J. W. Adams. EPA-600/7-78-017. 189

Pg. No.

Effect of SO_2 Emission Requirements of Fluidized-Bed Combustion Systems: Preliminary Technical/Economic Assessment. R. A. Newby. EPA-600/7-78-163. 121

Effects of Alternative New Source Performance Standards on Flue Gas Desulfurization System Supply and Demand. V. P. Patel. EPA-600/7-78-033. 113

Effects of Charged Particles on Cascade Impactor Calibrations. R. G. Patterson. EPA-600/7-78-195. 165

Effects of Combustion Modifications for NOx Control on Utility Boiler Efficiency and Combustion Stability. Owen W. Dykema. EPA-600/2-77-190. 140

Effects of the Disposal of Coal Waste and Ashes in Open Pits. Jacek Libicki. EPA-600/7-78-067. 47

Effects of Interfacial Properties on Collection of Fine Particles by Wet Scrubbers. G. J. Woffinden. EPA-600/7-78-097. 192

Effects of Methyl Methanesulfonate and Dimethylnitrosamine on Syrian Hamster Sperm. Andrew J. Wyrobek. EPA-600/7-78-123. 214

Effects of Temperature and Pressure on Particle Collection Mechanisms: Theoretical Review. Seymour Calvert. EPA-600/7-77-002. 170

Effects of Thermal Discharge on Aquatic Insects in the Tennessee Valley. K. J. Tennessen. EPA-600/7-78-128. 75

Effective Control of Secondary Water Pollution from Flue Gas Desulfurization Systems. Lanny D. Weimer. EPA-600/7-77-106. 125

Electrified Bed Evaluation. William Piispanen. EPA-600/7-78-178. 164

Electrical Energy as an Alternate to Clean Fuels for Stationary Sources; Volume I. R. M. Wells. EPA-600/2-76-049a. 66

Electrical Energy as an Alternate to Clean Fuels for Stationary Sources; Volume II--Appendix. R. M. Wells. EPA-600/2-76-049b. 67

Energy Comsumption of Environmental Controls: Fossil Fuel, Steam Electric Generating Industry. Brian Murphy. EPA-600/7-77-101. 65

Electrostatic Effects in Fabric Filtration: Volume II. Triboelectric Measurements and Bag Performance (Annotated Data). E. R. Frederick. EPA-600/7-78-142b. 163

An Electrostatic Precipitator Backup for Sampling Systems. P. Vann Bush. EPA-600/7-78-114. 161

Electrostatic Precipitator Technology Assessment: Visits in Japan, November 1977. Grady B. Nichols. EPA-600/7-78-110. 159

Pg. No.

Elkins Mine Drainage Pollution Control Demonstration Project. Staff, Resource Extraction and Handling Division. EPA-600/7-77-090. 55

Emission Characterization of Stationary NO$_x$ Sources: Volume I. Results. K. G. Salvesen. EPA-600/7-78-120a. 135

Emission Characterization of Stationary NO$_x$ Sources: Volume II. Data Supplement. K. G. Salvensen. EPA-600/7-78-120b. 136

Emission Reduction on Two Industrial Boilers with Major Combustion Modifications. W. A. Carter. EPA-600/7-78-099a. 135

Emissions Assessment of Conventional Stationary Combustion Systems: Methods and Procedures Manual for Sampling and Analysis. J. W. Hamersma. EPA-600/7-79-029a. 150

Emissions Assessment of Conventional Stationary Combustion Systems: Volume II. Internal Combustion Sources. C. C. Shih. EPA-600/7-79-029c. 150

Emissions from Residential and Small Commercial Stoker-Coal-Fired Boilers Under Smokeless Operation. Robert D. Giammar. EPA-600/7-76-029. 180

Energy Consumption of Advanced Wastewater Treatment at Ely, Minnesota. Donald J. Hernandez. EPA-600/7-78-001. 71

Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume I Summary. Irvin L. White. EPA-600/7-77-072a. 64

Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume II Detailed Analyses and Supporting Materials. Irvin L. White. EPA-600/7-77-072b. 64

Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume III Preliminary Policy Analysis. Irvin L. White. EPA-600/7-77-072c. 64

Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Appendices. Irvin L. White. EPA-600/7-77-072d. 65

Energy From the West: Impact Analysis Report Volume I: Introduction and Summary. Irvin L. White. EPA-600/7-79-082a. 62

Energy From the West: Impact Analysis Report Volume II: Site-Specific and Regional Impact Analyses. Irvin L. White. EPA-600/7-79-082b. 62

Energy From the West: Policy Analysis Report. Irvin L. White. EPA-600/7-79-083. 62

Pg. No.

Energy From the West: Energy Resource Development Systems Report-Volume I: Introduction and General Social Controls. I. L. White. EPA-600/7-79-060a. 60

Energy From the West: Energy Resource Development Systems Report-Volume II. Coal. I. L. White. EPA-600/7-79-060b. 60

Energy From the West: Energy Resource Development Systems Report-Volume III: Oil Shale. I. L. White. EPA-600/7-79-060c. 60

Energy From the West: Energy Resource Development Systems Report-Volume IV: Uranium. I. L. White. EPA-600/7-79-060d. 61

Energy From the West: Energy Resource Development Systems Report-Volume V: Oil and Natural Gas. I. L. White. EPA-600/7-79-060e. 61

Energy From the West: Energy Resource Development Systems Report-Volume VI: Geothermal. I. L. White. EPA-600/7-79-060f. 61

Energy Supply, Demand/Need, and the Gaps Between; Volume I--An Overview. J. W. Meyer. EPA-600/2-76-044a. 66

Energy Supply, Demand/Need, and the Gaps Between; Volume II--Monographs and Working Papers. J. W. Meyer. EPA-600/2-76-044b. 66

Energy Requirements of Present Pollution Control Technology. R. W. Serth. EPA-600/7-78-084. 87

Engineering/Economic Analyses of Coal Preparation with SO_2 Cleanup Processes for Keeping Higher Sulfur Coals in the Energy Market. The Hoffman-Muntner Corporation. EPA-600/7-78-002. 22

An Engineering/Economic Analysis of Coal Preparation Plant Operation and Cost. Hoffman-Muntner. EPA-600/7-78-124. 23

Engineering and Economic Analysis of Waste to Energy Systems. E. Milton Wilson. EPA-600/7-78-086. 74

Environmental Aspects of Fuel Conversion Technology, II (December 1975, Hollywood, Florida). Franklin A. Ayer. EPA-600/2-76-149. 106

Environmental Aspects of Fuel Conversion Technology, III (September 1977, Hollywood, Florida). Franklin A. Ayer. EPA-600/7-78-063. 29

Environmental Assessment of Coal Cleaning Processes: Master Test Plan. D. A. Tolle. EPA-600/7-79-073a. 21

Environmental Assessment of Coal Liquefaction: Annual Report. Ken T. Budden. EPA-600/7-78-019. 28

Environmental Assessment Data Base for Coal Liquefaction Technology: Volume I. Systems for 14 Liquefaction Processes. Craig S. Koralek. EPA-600/7-78-184a. 31

Pg. No.

Environmental Assessment Data Base for Coal Liquefaction Technology: Volume II. Synthoil, H-Coal, and Exxon Donor Solvent Processes. C. Leon Parker. EPA-600/7-78-184b. 31

Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume I. Executive Summary. C. Leavitt. EPA-600/7-78-164a. 89

Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume II. Comparative Assessment. C. Leavitt. EPA-600/7-78-164b. 90

Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume III. Comprehensive Assessment and Appendices. C. Leavitt. EPA-600/7-78-164c. 90

Environmental Assessment of Coal Transportation. Michael F. Szabo. EPA-600/7-78-081. 87

Environmental Assessment of Geopressured Waters and Their Project Uses. J. S. Wilson. EPA-600/7-77-039. 92

Environmental Assessment of High-Btu Gasification: Annual Report. M. Ghassemi. EPA-600/7-78-025. 29

Environmental Assessment Data Base for High-Btu Gasification Technology: Volume I. Technical Discussion. M. Ghassemi. EPA-600/7-78-186a. 32

Environmental Assessment Data Base for High-Btu Gasification Technology: Volume II. Appendices A, B, and C. M. Ghassemi. EPA-600/7-78-168b. 32

Environmental Assessemnt Data Base for High-Btu Gasification Technology: Volume III. Appendices D, E, and F. M Ghassemi. EPA-600/7-78-186c. 33

Environmental Assessment Data Base for Low/Medium-Btu Gasification Technology: Volume I. Technical Discussion. E. C. Cavanuagh. EPA-600/7-77-125a. 37

Environmental Assessment Data Base for Low/Medium-Btu Gasification Technology: Volume II. Appendices A-F. E. C. Cavanaugh. EPA-600/7-77-125b. 37

Environmental Assessment of Low/Medium-Btu Gasification: Annual Report E. C. Cavanaugh. EPA-600/7-77-142. 38

Environmental Assessment of Stationary Source NO_x Control Technologies: First Annual Report. L. R. Waterland. EPA-600/7-78-046. 134

Environmental Assessment for Residual Oil Utilization-Second Annual Report. M. F. Tyndall. EPA-600/7-78-175. 91

Pg. No.

Environmental Assessment of Solid Residues From Fluidized-Bed Fuel Processing. Ralph Stone. EPA-600/7-77-139. 79

Environmental Assessment of Solid Residues from Fluidized-Bed Fuel Processing: Final Report. Ralph Stone. EPA-600/7-78-107. 88

Environmental Assessment of Waste-To-Energy Processes: Source Assessment Document. K. P. Ananth. EPA-600/7-77-091. 105

Environemntal Effects of Energy-Abstracts of Selected Projects Supported by EPA Funds. Philip L. Johnson. EPA-600/7-77-048. 221

Environmental Effects of Increased Coal Utilization: Ecological Effects of Gaseous Emissions from Coal Combustion. Norman R. Glass. EPA-600/7-78-108. 219

Environmental Impact Statement for a Hypothetical 1000 MW$_e$ Photovoltaic Solar-Electric Plant. D. Richard Sears. EPA-600/7-77-085. 104

Environmental Overview of Texas Lignite Development. D. Harner. EPA-600/7-78-003. 45

Environmental Pathways Of Selected Chemicals In Freshwater Systems Part II: Laboratory Studies. J. H. Smith. EPA-600/7-78-074. 219

Environmental Pathways of Selected Pollutants in Freshwater Systems Part I: Background and Experimental Procedures. J. H. Smith. EPA-600/7-77-113. 212

Environmental Residuals Output Model for Operation and Expansion of an Electric Power System. Barry D. Evans. EPA-600/7-77-134. 79

Environmental Residuals Output Model for Operation and Expansion of an Electric Power System. Barry D. Evans. EPA-600/7-79-077. 70

EPA Alkali Scrubbing Test Facility: Advanced Program, Third Progress Report. Harlan N. Head. EPA-600/7-77-105. 125

EPA and ERDA High-Temperature/High-Pressure Particulate Control Programs. R. A. Kennedy. EPA-600/7-77-013. 171

EPA Evaluation of Bahco Industrial Boiler Scrubber System at Rickenbacker AFB. E. L. Biedell. EPA-600/7-78-115. 120

EPA Facric Filtration Studies: Bag Aging Effects. R. P. Donovan. EPA-600/7-77-095a. 175

EPA Fabric Filtration Studies: Bag Cleaning Technology (High Temperature Tests). B. E. Daniel. EPA-600/7-77-095b. 175

EPA Fabric Filtration Studies: Influence of Dust Properties on Particle Penetration. R. P. Donovan. EPA-600/7-78-141. 162

Pg. No.

EPA/IERL-RTP Interim Procedures for Level 2 Sampling and Analysis of Organic Materials. J. C. Harris. EPA-600/7-78-016. 189

EPA Research in Fabric Filtration: Annual Report on IERL-RTP Inhouse Program. James H. Turner. EPA-600/7-77-042. 173

EPA Utility FGD Survey: December 1977 - January 1978. Bernard A. Laseke, Jr. EPA-600/7-78-051a. 117

EPA Utility FGD Survey: February-March 1978. N. Gregory. EPA-600/7-78-051b. 117

EPA Utility FGD Survey: April-May 1978. B. Laseke. EPA-600/7-78-051c 117

EPA Utility FGD Survey: June-July 1978. M. Melia. EPA-600/7-78-051d. 118

EPA Industrial Boiler FGD Survey: First Quarter 1978. J. Tuttle. EPA-600/7-78-052a. 118

EPA Insustrial Boiler FGD Survey: Second Quarter 1978. J. Tuttle. EPA-600/7-78-052b. 118

EPA Industrial Boiler FGD Survey: Third Quarter 1978. J. Tuttle. EPA-600/7-78-052c. 118

EPA Program Conference Report - Coal Claening - An Option for Increased Coal Utilization. R. E. Balzhiser. EPA-600/7-77-130. 25

EPA-Interagency Coal Cleaning Program: FY 1978 Progress Report. Robin D. Tems. EPA-600/7-79-072. 21

The U. S. Environmental Protection Agency's Fluidized-Bed Combustion Program, FY 1976. Not identified. EPA-600/7-77-012. 14

EPA Program Status Report: Oil Shale. L. Eckstein. EPA-600/7-78-020. 28

EPA Program Status Report: Synthetic Fuels from Coal (Including Process Overview with Emphasis on Environmental Considerations). Morris Altschuler. EPA-600/7-77-102. 36

EPA's Sationary Source Combustion Control Technology Program-FY 1976. EPA-600/7-77-077. 94

EPA Utility FGD Survey: October-November 1978. M. Melia. EPA-600/7-79-022b. 56

Estimating Environmental Damages from Surface Mining of Coal in Appalachia: A Case Study. Alan Randall. EPA-600/2-78-003. 42

Evaluating the Sampling Frequencies of Water Quality Monitoring Networks. Robert C. Ward. EPA-600/7-78-169. 197

Pg. No.

Evaluation of Background Data Relating to New Source Performance Standards for Lurgi Gasification. J. W. Sinor. EPA-600/7-77-057. 36

Evaluation of Calcium Sensors in Fresh and Salt Water. Gary K. Ward. EPA-600/7-79-058. 186

Evaluation of Ceramic Filters for High-Temperature/High-Pressure Fine Particulate Control. G. G. Poe. EPA-600/2-77-056. 166

An Evaluation of the Disposal of Flue Gas Desulfurization Wastes in Mines and the Ocean: Initial Assessment. R. R. Lunt. EPA-600/7-77-051. 77

Evaluation of Electrostatic Precipitator During SRC Combustion Tests. Grady B. Nichols. EPA-600/7-78-129. 162

Evaulation of the Environmental Effects of Western Surface Coal Mining Volume II - Mine Inventory. William Kelly. EPA-600/7-79-034. 42

The Evaluation of Fluoride Ion-Selective Electrodes in Freshwater and Seawater. Gary K. Ward. EPA-600/7-79-056. 185

Evaluation of Foam Scrubbing as a Method for Collecting Fine Particulate. Geddes H. Ramsey. EPA-600/2-77-197. 169

Evaluation of Four Novel Fine Particulate Collection Devices. S. Calvert. EPA-600/2-78-062. 155

Evaluation of the General Motors' Double Alkali SO_2 Control System. Edward Interess. EPA-600/7-77-005. 140

Evaluation of Molten Scrubbing for Fine Particulate Control. G. G. Poe. EPA-600/2-77-067. 166

Evaluation of Monitoring Systems for Power Plant and Sulfur Recovery Plant Emissions. Malbone W. Greene. EPA-600/2-76-171. 206

Evaluation of the Orion Divalent Specific Ion Eectrode. Gary K. Ward. EPA-600/7-79-059. 186

An Evaluation of Personal Sampling Pumps in Sub-Zero Temperatures. Carl D. Parker. EPA-600/7-77-145. 205

Evaluation of the PILLS IV. William E. Farthing. EPA-600/7-78-130. 162

Evaluation of Pollution Control in Fossil Fuel Conversion Processes: Final Report. E. M. Magee. EPA-600/2-76-101. 97

Evaluation of Sodium Ion Electrodes in Freshwater and Seawater. Gary K. Ward. EPA-600/7-79-061. 186

Evaluation of Stationary Source Particulate Measurement Methods, Volume II Oil-Fired Steam Generators. Edward T. Peters. EPA-600/2-77-026. 199

Pg. No.

Evaluation of a Sulfur Dioxide Mass Emission Rate Monitoring System. Roosevelt Rollins. EPA-600/2-78-007. 188

Evaluation of Three Industrial Particulate Scrubbers. Seymour Calvert. EPA-600/2-78-032. 154

Evaluation of Trace Element Release from Fluidized-Bed Combustion Systems. M. A. Alvin. EPA-600/7-78-050. 11

Evaluation of the United States Geological Survey Laboratory, Atlanta, Georgia. Robert L. Booth. EPA-600/7-78-137. 196

Evaluation of the U.S. Geological Survey Laboratory, Denver, CO. Robert L. Booth. EPA-600/7-78-083. 191

Evaluations of Novel Particulate Control Devices. Joseph D. McCain. EPA-600/7-78-093. 191

An Examination of Some Micrometeorological Methods for Measuring Dry Deposition. Bruce B. Hicks. EPA-600/7-78-116. 194

Executive Summary for Full-Scale Dual-Alkali Demonstration at Louisville Gas and Electric Co.--Preliminary Design and Cost Estimate. R. P. VanNess. EPA-600/7-78-010a. 110

Experimental Air Exclusion System for Field Studies of SO_2 Effects on Crop Productivity. H. C. Jones. EPA-600/7-77-122. 212

Experimental Evaluation of Fuel Oil Additives for Reducing Emissions and Increasing Efficiency of Boilers. Robert D. Giammar. EPA-600/2-77-008b. 91

European Developments in the Recovery of Energy and Materials from Municipal Solid Waste. W. David Conn. EPA-600/7-77-040. 103

Fabric Filter Model Format Change; Volume I. Detailed Technical Report. Richard Dennis. EPA-600/7-79-043a. 151

Fate of Trace and Minor Constituents of Coal During Gasification. A. Attari. EPA-600/2-76-258. 39

Feasibility of a Direct Contact Heat and Emission Loss Prevention System for Area Source Furnaces. R. J. Schreiber. EPA-600/2-76-121. 146

Feasibility of Producing Elemental Sulfur from Magnesium Sulfite. Philip S. Lowell. EPA-600/7-76-030. 129

A Feasibility Study of a Pocket-Sized Gas Chromatographic Air Analyzer. Stephen C. Terry. EPA-600/7-77-146. 205

Field Investigation of Cooling Tower and Cooling Pond Plumes. Ronald E. West. EPA-600/7-78-059. 73

Pg. No.

Field Investigations of Mechanical Draft Cooling Tower Plumes. Lawrence D. Winiarski. EPA-600/7-77-025. 199

Field Testing: Application of Combustion Modifications To Control Pollutant Emissions from Industrial Boilers--Phase II. G. A. Cato. EPA-600/2-76-086a. 145

Field Testing: Application of Combustion Modifications to Control Pollutant Emissions from Industrial Boilers--Phases I and II (Data Supplement). S. C. Hunter. EPA-600/2-77-122. 139

Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site A. J. E. Gabrielson. EPA-600/7-78-136a. 196

Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site B. J. E. Gabrielson. EPA-600/7-79-041a. 132

Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site A (Data Supplement). J. E. Gabrielson. EPA-600/7-78-136b. 196

Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site B (Data Supplement). J. E. Gabrielson. EPA-600/7-79-041b. 133

Field Test Sampling/Analytical Strategies and Implementation Cost Estimates: Coal Gasification and Flue Gas Desulfurization. J. W. Hamersma. EPA-600/2-76-093b. 38

Filter Cake Redeposition in a Pulse-Jet Filter. David Leith. EPA-600/7-77-022. 171

Filtration Model for Coal Fly Ash with Glass Fabrics. R. Dennis. EPA-600/7-77-084. 174

Filtration Parameters for Dust Cleaning Fabrics. Jan R. Koscianowski. EPA-600/7-79-031. 151

Final Report: Dual Alkali Test and Evaluation Program; Volume I. Executive Summary. C. R. LaMantia. EPA-600/7-77-050a. 123

Final Report: Dual Alkali Test and Evaluation Program; Volume II. Laboratory and Pilot Plant Programs. C. R. LaMantia. EPA-600/7-77-050b. 123

Final Report: Dual Alkali Test and Evaluation Program; Volume III. Prototype Test Program-Plant Scholtz. C. R. LaMantia. EPA-600/7-77-050c. 124

	Pg. No.
Final Report for Low Pressure Tests of the CPU-400 Pilot Plant. Not identified. EPA-600/2-77-195.	76
Fine Particle Charging Development. D. H. Pontius. EPA-600/2-77-173.	168
Fine Particule Collection by a Flux-Force/Condensation Scrubber: Pilot Demonstration. Seymour Calvert. EPA-600/2-77-238.	169
Fine Particule Emissions Information System Reference Manual. M. P. Schrag. EPA-600/2-76-173.	179
Fine Particule Emissions Information System: Summary Report (Summer 1976). M. P. Schrag. EPA-600/2-76-174.	179
Fine Particle Emissions Information System User Guide. M. P. Schrag. EPA-600/2-76-172.	178
Fine Particle Emissions Information System User Workshop. M. P. Schrag. EPA-600/7-77-001.	170
First Order Estimates of Energy Requirements for Pollution Control. James L. Barker. EPA-600/7-78-022.	63
First Trials fo CAFB Pilot Plant on Coal. D. Lyon. EPA-600/7-77-027.	14
Flue Gas Desulfurization System Capabilities for Coal-fired Steam Generators Volume I. Executive Summary. T. Devitt. EPA-600/7-78-032a.	113
Flue Gas Desulfurization System Capabilities for Coal-Fired Steam Generators Volume II. Technical Report. T. Devitt. EPA-600/7-78-032b.	113
Flue Gas Desulfurization systems: Design and Operating Considerations Volume I. Executive Summary. C. C. Leivo. EPA-600/7-78-030a.	111
Flue Gas Desulfurization Systems: Design and Operating Considerations Volume II. Technical Report. C. C. Leivo. EPA-600/7-78-030b.	112
Flue Gas Desulfurization Using Fly Ash Alkali Derived from Western Coals. H. M. Ness. EPA-600/7-77-075.	124
Fractional Efficiency of an Electric Arc Furnace Baghouse. Reed W. Cass. EPA-600/7-77-023.	172
Fuel Contaminants: Volume 3. Control of Coal-Related Pollutants. E. J. Mezey. EPA-600/7-79-025a.	20
Fuel Contaminants: Volume 4. Application of Oil Agglomeration to Coal Wastes. E. J. Mezey. EPA-600/7-79-025b.	20

	Pg. No.
Fuel and Energy Production by Bioconversion of Waste Materials - State-of-the-Art. Sylvia A. Ware. EPA-600/2-76-148.	106
Fuel Gas Environmental Impact. F. L. Robson. EPA-600/2-76-153.	97
Fuel Gas Environmental Impact: Final Report. F. L. Robson. EPA-600/7-78-088.	30
Fugitive and Fine Particle Control Using Electrostatically Charged Fog. Stuart A. Hoenig. EPA-600/7-79-078.	154
Fusion Method for the Measurement of Plutonium in Soil: Single-Laboratory Evaluation and Interlaboratory Collaborative Test. P. B. Hahn. EPA-600/7-77-078.	202
Gasification/Combined-Cycle System for Electric Power Generation. J. Bruce Truett. EPA-600/2-76-085.	38
Geothermal Industry Position Paper: EPA Regulatory Options and R&D Needs. Gregory J. D'Alessio. EPA-600/7-77-092.	105
Guide to Preselection of Training Samples and Ground Truth Collection. Charles E. Tanner. EPA-600/7-77-100.	204
Guidelines for Particulate Sampling in Gaseous Effluents from Industrial Processes. R. R. Wilson. EPA-600/7-79-028.	150
Guidelines for Preparing Environmental Test Plans for Coal Gasification Plants. G. C. Page. EPA-600/7-78-134.	30
Handbook for Analytical Quality Control in Radioanalytical Laboratories. L. G. Kanipe. EPA-600/7-77-088.	203
Health Effects Related Research Summary, FY75-77. J. Dorigan. EPA-600/7-77-112.	215
Heat Pumps: Substitutes for Outmoded Fossil-Fueled Systems. E. A. Picklesimer. EPA-600/7-77-035.	63
High-Temperature Desulfurization of Low-Btu Gas. G. P. Curran. EPA-600/7-77-031.	123
High-Temperature and High-Pressure Particulate Control Requirements. Richard Parker. EPA-600/7-77-071.	174
High Temperature Particulate Control with Ceramic Filters. D. F. Ciliberti. EPA-600/2-77-207.	169
Hydrocarbon and Oxidant Chemistry Observed at a Site Near St. Louis. R. A. Rasmussen. EPA-600/7-77-056.	211

Pg. No.

Hydrocarbon Pollutants from Stationary Sources. E. C. Cavanaugh. EPA-600/7-77-110. 176

Identification of Components of Energy-Related Wastes and Effluents. E. D. Pellizzari. EPA-600/7-78-004. 72

IERL-RTP Procedures Manual: Level 1 Environmental Assessment Biological Tests for Pilot Studies. K. M. Duke. EPA-600/7-77-043. 200

Impact of Clean Fuels Combustion on Primary Particulate Emissions from Stationary Sources. Not Identified. EPA-600/2-76-052. 178

Impact of Point Source Control Strategies on NO_2 Levels. B. R. Eppright. EPA-600/7-78-212. 138

Inertial Cascade Impactor Substrate Media for Flue Gas Sampling. Larry G. Felix. EPA-600/7-77-060. 174

Initial Environmental Test Plan for Source Assessment of Coal Gasification. A. Attari. EPA-600/2-76-259. 39

In-Situ Coal Gasification: Status of Technology and Environmental Impact. Nancy P. Phillips. EPA-600/7-77-045. 35

Intercomparison of Plutonium - 239 Measurements. Lee H. Ziegler. EPA-600/7-78-105. 193

Intercomparison of Samplers Used in the Determination of Aerosol Composition. D. C. Camp. EPA-600/7-78-118. 194

Inventory of Combustion-Related Emissions from Stationary Sources. Owen W. Dykema. EPA-600/7-76-012. 146

Inventory of Combustion-Related Emissions From Stationary Sources (First Update). Owen W. Dykema. EPA-600/2-77-066a. 139

Inventory of Combustion-Related Emissions from Stationary Sources (Second Update). Vernon E. Kemp. EPA-600/7-78-100. 135

Investigation of Advanced Thermal-Chemical Concepts for Obtaining Improved MSW-Derived Products. N. L. Hecht. EPA-600/7-78-143. 102

Investigation of Matrix Interferences for AAS Trace Metal Analyses of Sediments. Mary M. McKown. EPA-600/7-78-085. 191

Investigations of Saturated Laser Fluorescence and CARS Spectroscopic Techniques for Combustion Diagnostics. A. C. Eckbreth. EPA-600/7-78-104. 193

Investigation of Soils and Vegetative Damage: Vicinity of Hartsfield, Atlanta's International Airport--Mountain View, GA. K. W. Brown. EPA-600/7-78-064. 218

Pg. No.

Kinetics of Sulfur Dioxide Oxidation in Aqueous Solution. J. L. Hudson. EPA-600/7-79-030. 56

Laboratory Study of Limestone Regeneration in Dual Alkali Systems. J. E. Oberholtzer. EPA-600/7-77-074. 124

Least-Squares Analysis of Gamma-Ray Spectra In Environmental Samples. L. G. Kanipe. EPA-600/7-77-089. 203

Level 1 Environmental Assessment Performance Evaluation. Eva D. Estes. EPA-600/7-79-032. 84

Level 2 Chemical Analysis of Fluidized-Bed Combustor Samples. L. E. Ryan. EPA-600/7-79-063b. 10

Literature Survey of Emissions Association with Emerging Energy Technologies. J. E. Sickles. EPA-600/7-77-104. 175

Lime/Limestone Scrubbing Sludge Characterization--Shawnee Test Facility. J. L. Crowe. EPA-600/7-77-123. 78

Long-Term Environmental Effectiveness of Close Down Procedures - Eastern Underground Coal Mines. M. F. Bucek. EPA-600/7-77-083. 54

Low- and Medium-Btu Gasification Systems: Technology Overview. Paul W. Spaite. EPA-600/7-78-061. 29

Low NO_x Combustion Concepts for Advanced Power Generation Systems Firing Low-Btu Gas. T. J. Tyson. EP-600/2-77-235. 140

Low-Sulfur Western Coal Use in Existing Small and Intermediate Size Boilers. Kenneth L. Maloney. EPA-600/7-78-153a. 89

Magnesia FDG Process Testing on a Coal-Fired Power Plant. Dianne Summerer. EPA-600/2-77-165. 122

Magnesia Scrubbing Applied to a Coal-Fired Power Plant. George Koehler. EPA-600/7-77-018. 122

A Mathematical Model of Electrostatic Precipitation (Revision 1): Volume I. Modeling and Programming. Jack R. McDonald. EPA-600/7-78-111a. 160

A Mathematical Model of Electrostatic Precipitation (Revision 1): Volume II. User Manual. Jack R. McDonald. EPA-600/7-78-111b. 160

A Mathematical Model of Electrostatic Precipitation: Computer Program. Jack R. McDonald. EPA-600/7-78-111c. 160

Mathematical Model for Multiple Cooling Tower Plumes. F. H. Y. Wu. EPA-600/7-78-102. 74

	Pg. No.
The Measurement of Carcinogenic Vapors in Ambient Atmospheres. Edo D. Pellizzari. EPA-600/7-77-055.	215
Measurement of Carcinogenic Vapors in Ambient Atmospheres, Final Report. Edo D. Pelizzari. EPA-600/7-78-062.	214
Measurement of Fly Ash Resistivity Using Simulated Flue Gas Environments. R. E. Bickelhaupt. EPA-600/7-78-035.	156
Measurement of High-Temperature, High-Pressure Processes: Annual Report. Larry Cooper. EPA-600/7-78-011.	155
Measurement of PCB Emissions from Combustion Sources. P. L. Levins. EPA-600/7-79-047.	152
MESOPAC: A Mesoscale Meteorology Package. Carl W. Benkley. EPA-600/7-79-055.	208
Method for Analyzing Emissions from Atmospheric Fluidized-Bed Combustor. E. L. Merryman. EPA-600/7-77-034.	15
Meyers Process Developemnt for Chemical Desulfurization of Coal, Volume I. E. P. Koutsoukos. EPA-600/2-76-143a.	128
Meyers Process Development for Chemical Desulfurization of Coal, Volume II--Appendices. E. P. Koutsoukos. EPA-600/2-76-143b.	128
Microbial Degradation of Petroleum Hydrocarbons. D. W. S. Westlake. EPA-600/7-78-148.	49
Miniplant Studies of Pressurized Fluidized-Bed Coal Combustion: Third Annual Report. R. C. Hoke. EPA-600/7-78-069.	12
Mobile Bed Flux Force/Condensation Scrubbers. S. C. Yung. EPA-600/7-79-071.	154
Monitoring Environmental Impacts of the Coal and Oil Shale Industries, Research and Development Needs. D. C. Jones. EPA-600/7-77-015.	52
Multimedia Environmental Goals for Environmental Assessment, Volume I. J. G. Cleland. EPA-600/7-77-136a.	95
Multimedia Environmental Goals for Environmental Assessment, Volume II. MEG Charts and Background Information. J. G. Cleland. EPA-600/7-77-136b.	95
Multiwavelength Transmissometer for Measuring Mass Concentration of Particulate Emissions. Eli Reisman. EPA-600/2-79-022.	184
National Plan for the Safety and Health of Divers in their Quest for Subsea Energy. Charles W. Shilling. EPA-600/7-77-028.	215
Nitrogen Dioxide Photolytic, Radiometric, and Meteorological Field Data. J. E. Sickles. EPA-600/7-78-053.	134

Pg. No.

NO_x Abatement for Stationary Sources in Japan. J. Ando. EPA-600/7-77-103b. 142

No_x Abatement for Stationary Sources in Japan. Jumpei Ando. EPA-600/2-76-013b. 143

NO_x Formation in CO Flames. E. L. Merryman. EPA-600/2-77-008c. 138

Nonwater Quality Impacts of Closed-Cycle Cooling Systems and the Interaction of Stack Gas and Cooling Tower Plumes. G. A. Englesson. EPA-600/7-79-090. 71

Nonwoven Fabric Filters for Particulate Removal in Respirable Dust Range. Bernard Miller. EPA-600/7-77-115. 176

Nuclear Power Plant Waste Heat Horticulture. T. Sproston. EPA-600/7-79-091. 71

Offshore Oil and Gas Extraction, An Environmental Review. N.A. Frazier. EPA-600/7-77-080. 54

Oil Pollution Reports, Vol. 5 No. 2 (February 1978 - May 1978). Helmut Ehrenspeck. EPA-600/7-78-160. 50

Oil Pollution Reports, Vol. 5 No. 3 (June 1978 - September 1978). Helmut Ehrenspeck. EPA-600/7-78-218. 51

Onsite Control of Sedimentation Utilizing the Modified Block-Cut Method of Surface Mining. C. T. Haan. EPA-600/7-77-068. 53

Operation and Maintenance of Particulate Control Devices on Coal-Fired Utility Boilers. Michael F. Szabo. EPA-600/2-77-129. 167

Optimization of Design Specifications for Large Dry Cooling Systems. Tzvi Rozenman. EPA-600/7-78-152. 75

Overburden Mineralogy as Related to Ground-Water Chemical Changes in Coal Strip Mining. Arthur Hounslow. EPA-600/7-78-156. 50

Overfire Air Technology for Tangentially Fired Utility Boilers Burning Western U.S. Coal. Richard L. Burrington. EPA-600/7-77-117. 142

Paleoenvironment of Coal and Its Relation to Drainage Quality. Frank T. Caruccio. EPA-600/7-77-067. 53

Parametric Studies of Catalysts for NO_x Control from Stationary Power Plants. Ken Nobe. EPA-600/7-76-026. 147

Particle Collection by a Venturi Scrubber Downstream from an Electrostatic Precipitator. L. E. Sparks. EPA-600/7-78-193. 165

Pg. No.

Particulate Collection Efficiency Measurements on an ESP Installed on a Coal-Fired Utility Boiler. John P. Gooch. EPA-600/2-77-011. 165

Particulate Control with Cleanable Cartridge Filters Using Double-Layer Media. William J. Krisko. EPA-600/7-77-140. 177

Particulate Control for Fugitive Dust. George E. Weant, III. EPA-600/7-78-071. 158

Particulate Control Mobile Test Units: Third Year's Operation. Donald L. Zanders. EPA-600/7-78-098. 192

Particulate Sampling Support: 1977 Annual Report. K. M. Cushing. EPA-600/7-78-009. 155

Particle Size Definitions for Particulate Data Analysis. J. B. Galeski. EPA-600/7-77-129. 176

Performance of a High Velocity Pulse-Jet Filter. David Leith. EPA-600/7-78-131. 195

Performance Testing of Oil Mop Zero Relative Velocity Oil Skimmer. Michael K. Breslin. EPA-600/7-78-060. 47

Performance Testing of Selected Sorbent Booms. Gary F. Smith. EPA-600/7-78-219. 51

Performance Testing of Three Offshore Skimming Devices. H. W. Lichte. EPA-600/7-78-082. 48

Petroleum Hydrocarbon Baseline Investigation for Northern Puget Sound and the Strait of Juan de Fuca. William D. MacLeod, Jr. EPA-600/7-77-098. 223

Physical Coal Cleaning for Utility Boiler SO_2 Emission Control. E.H. Hall. EPA-600/7-78-034. 22

Pilot Plant Design for Chemical Desulfurization of Coal. L. J. Van Nice. EPA-600/2-77-080. 24

Pilot Plant Study of Conversion of Coal to Low Sulfur Fuel. Donald K. Fleming. EPA-600/2-77-206. 25

Pollutants from Synthetic Fuels Production: Facility Construction and Preliminary Tests. J. G. Cleland. EPA-600/7-78-171. 31

Pollutant Emissions from "Dirty" Low- and Medium-Btu Gases. R. T. Waibel. EPA-600/7-78-191. 137

Pollutant Measurements in Plumes from Power Plants and Cities, Summer 1975, February 1976, and February 1977, A Project MISTT Report. J. A. Ogren. EPA-600/7-78-041. 209

Pg. No.

Pollution Control Guidance for Geothermal Energy Developemnt. Robert P. Hartley. EPA-600/7-78-101. 101

Pollution Control Guidelines for Coal Refuse Piles and Slurry Ponds. W. A. Wahler. EPA-600/7-78-222. 52

Portable Vacuum X-Ray Spectrometer, Instrument for On-Site Analysis of Airborne Particulate Sulfur and Other Elements. J. V. Gilfrich. EPA-600/7-78-103. 193

Potential Abatement Production and Marketing of Byproduct Sulfuric Acif in the U.S. J. I. Bucy. EPA-600/7-78-070. 73

Potential Radioactive Pollutants Resulting from Expanded Energy Programs. Hong Lee. EPA-600/7-77-082. 203

Power Plant Stack Plumes in Complex Terrain, An Appraisal of Current Research. Robert C. Koch. EPA-600/7-77-020. 210

Power Plant Stack Plumes in Complex Terrain, Data Collected During an Aerometric Field Study. Robert C. Koch. EPA-600/7-79-010b. 208

Precipitation Chemistry of Magnesium Sulfite Hydrates in Magnesium Oxide Scrubbing. Philip S. Lowell. EPA-600/7-77-109. 126

A Preliminary Assessment of the Environmental Impacts from Oil Shale Developments. K. W. Crawford. EPA-600/7-77-069. 54

Preliminary Design and Initial Testing of a Mobile Electrostatic Precipitator. Grady B. Nichols. EPA-600/7-78-096. 159

Preliminary Emissions Assessment of Conventional Stationary Combustion Systems; Volume I--Executive Summary. Normal Surprenant. EPA-600/2-76-046a. 95

Preliminary Emissions Assessment of Conventional Stationary Combustion Systems; Volume II--Final Report. Norman Surprenant. EPA-600/2-76-046b. 96

Preliminalry Emissions Assessment of Conventional Stationary Combustion Systems; Volume III, Update (12/75-6/76). Norman Surprenant. EPA-600/2-76-046c. 96

Preliminary Environmental Assessemnt of Biomass Conversion to Synthetic Fuels. S. T. DiNovo. EPA-600/7-78-204. 34

Preliminary Environmental Assessment of the CAFB. A. S. Werner. EPA-600/7-76-017. 17

Preliminary Environmental Assessment of Coal-Fired Fluidized-Bed Combustion Systems. Paul F. Fennelly. EPA-600/7-77-054. 15

Pg. No.

Preliminary Environmental Assessment of Combustion Modification Techniques: Volume I. Summary. H. B. Mason. EPA-600/7-77-119a. 142

Preliminary Environmental Assessment of Combustion Modification Techniques: Volume II. Technical Results. H. B. Mason. EPA-600/7-77-119b. 143

Preliminary Environmental Assessment of Energy Conversion Processes for Agricultural and Forest Product Residues; Volume I. Benjamin J. Gikis. EPA-600/7-78-047. 100

Preliminary Environmental Assessment of the Lignite-Fired CAFB. A. S. Werner. EPA-600/7-79-048. 10

Preliminary Environmental Assessment of Solar Energy Systems. D. R. Sears. EPA-600/7-77-086. 104

Procedures Manual for Electrostatic Precipitator Evaluation. Wallace B. Smith. EPA-600/7-77-059. 173

Procedures Manual for Environmental Assessment of Fluidized-Bed Combustion Processes. H. I. Abelson. EPA-600/7-77-009. 13

Procedures Manual for Fabric Filter Evaluation. Kenneth M. Cushing. EPA-600/7-78-113, 161

Proceedings of the Engineering Foundation Conference on Clean Combustion of Coal. Victor S. Engleman. EPA-600/7-78-073. 23

Proceedings of the Second Stationary Source Combustion Symposium Volume I. Small Industrial, Commercial, and Residential Systems. J. S. Bowen. EPA-600/7-77-073a. 92

Proceedings of the Second Stationary Source Combustion Symposium Volume II. Utility and Large Industrial Boilers. J. S. Bowen, EPA-600/7-77-073b. 93

Proceedings of the Second Stationary Source Combustion Symposium Volume III. Stationary Engine, Industrial Process Combustion System, and Advanced Processes. J. S. Bowen. EPA-600/7-77-073c. 93

Proceedings of the Second Stationary Source Combustion Symposium Volume IV. Fundamental Combustion Research. J. S. Bowen. EPA-600/7-77-073d. 93

Proceedings of the Second Stationary Source Combustion Symposium Volume V. Addendum. J. S. Bowen, EPA-600/7-77-073e. 94

Proceedings of the Third Stationary Source Combustion Symposium; Volume I. Utility, Industrial, Commercial, and Residential Systems. Joshua S. Bowen. EPA-600/7-79-050a. 84

Pg. No.

Proceedings of the Third Stationary Source Combustion Symposium; Volume II. Advanced Processes and Special Topics. Joshua S. Bowen. EPA-600/7-79-050b. 85

Proceedings of the Third Stationary Source Combustion Symposium; Volume III. Stationary Engine and Industrial Process Combustion Systems. Joshua S. Bowen. EPA-600/7-79-050c. 85

Proceedings of the Third Stationary Source Combustion Symposium; Volume IV. Fundamental Combustion Research and Environmental Assessment. Joshua S. Bowen. EPA-600/7-79-050d. 85

Proceedings of the Third Stationary Source Combustion Symposium; Volume V. Addendum. Joshua S. Bowen. EPA-600/7-79-050e. 86

Proceedings of the Second Workshop on Sampling Geothermal Effluents. Subir Sanyal. EPA-600/7-78-121. 102

Proceedings of the Stationary Source Combustion Symposium; Volume I--Fundamental Research. Not identified. EPA-600/2-76-152a. 128

Proceedings of the Stationary Source Combustion Symposium; Volume II--Fuels and Process Research and Development. Not identified. EPA-600/2-76-152b. 129

Proceedings of the Stationary Source Combustion Symposium; Volume III--Field Testing and Surveys. Not identified. EPA-600/2-76-152c. 129

Process Technology Background for Environmental Assessment/Systems Analysis Utilizing Residual Fuel Oil. M. F. Tyndall. EPA-600/7-77-081. 94

Production and Processing of U.S. Tar Sands, An Environmental Assessment. N. A. Frazier. EPA-600/7-76-035. 39

Production Cycles in Aquatic Microcosms. A. Jassby. EPA-600/7-77-097. 222

A Program for the Environmental Assessment of Conventional Combustion Processes. Deepak C. Kenkeremath. EPA-600/7-78-140. 137

HP-25 Programmable Pocket Calculator Applied to Air Pollution Measurement Studies: Stationary Sources. James W. Ragland. EPA-600/7-77-058. 201

Project Manual for Full-Scale Dual-Alkali Demonstration at Louisville Gas and Electric Co.--Preliminary Design and Cost Estimate. R. P. VanNess. EPA-600/7-78-010. 110

Protection, Cleanup, and Restoration of Salt Marshes Endangered by Oil Spills -- A Procedural Manual. D. J. Maiero. EPA-600/7-78-220. 52

Quality Control for Environmental Measurements Using Gamma-Ray Spectrometry. Lee H. Ziegler. EPA-600/7-77-144. 205

Pg. No.

Rapid Method for Determining NO_x Emissions in Flue Gasses. H. M. Barnes. EPA-600/2-76-094. 145

Rapping Reentrainment in a Near Full Scale Pilot Electrostatic Precipitator. Grady B. Nichols. EPA-600/7-78-112. 161

A Real-Time Measuring Device for Dense Particulate Systems. P. W. Chan. EPA-600/2-77-022. 198

Recent USSR Literature on Control of Particulate Emissions from Stationary Sources. Charles E. Feazel. EPA-600/2-77-084. 167

Reclamation of Surface Mined Coal Spoils. Richard I. Barnhisel. EPA-600/7-77-093. 222

Recommended Health and Safety Guidelines for Coal Gasification Pilot Plants. EPA-600/7-78-007. 28

Reductant Gases for Flue Gas Desulfurization Systems. D. W. Hissong. EPA-600/2-76-130. 127

Reduction of Nitric Oxide with Metal Sulfides. F. P. McCandless. EPA-600/7-78-213. 138

Reduction of Nitrogen Oxide Emissions from Field Operating Package Boilers--Phase III of III. M. P. Heap. EPA-600/2-77-025. 139

Regeneration of Calcium-Based SO_2 Sorbents for Fluidized-Bed Combustion: Engineering Evaluation. R. A. Newby. EPA-600/7-78-039. 11

A Region's Energy Future: The ORBES Experience. James J. Stukel. EPA-600/7-77-120. 65

Remote Monitoring of Coal Strip Mine Rehabilitation. James E. Anderson. EPA-600/7-78-149. 50

Renovation of Power Plant Cooling Tower Blowdown for Recycle by Evaporation: Crystallization with Interface Enhancement. Hugo H. Sephton. EPA-600/7-77-063. 78

Research and Development and Cost Projections for Air Pollution Control Equipment. R. W. McIlvaine. EPA-600/7-78-092. 158

Resources Allocation to Optimize Mining Pollution Control. Kenesaw S. Shumate. EPA-600/2-76-112. 223

Response of a Salt Marsh to Oil Spill and Cleanup: Biotic and Erosional Effects in the Hackensack Meadowlands, New Jersey. Phillip C. Dibner. EPA-600/7-78-109. 49

Reuse of Power Plant Desulfurization Waste Water. L. J. Bornstein. EPA-600/2-76-024. 80

Pg. No.

Revegetating Processed Oil Shale and Coal Spoils on Semi-Arid Lands - Interim Report. Neil Frischknecht. EPA-600/7-79-068. 21

Review of Laser Raman and Fluorescence Techniques for Practical Combustion Diagnostics. A. C. Eckbreth. EPA-600/7-77-066. 201

Review of New Source Performance Standards for Coal-Fired Utility Boilers, Volume I: Emissions and Non-Air Quality Environmental Impacts. Not identified. EPA-600/7-78-155a. 120

Review of New Source Performance Standards for Coal-Fired Utility Boilers, Volume II: Economic and Financial Impacts. Not identified. EPA-600/7-78-155b. 120

A Review of Regional-Scale Air Quality Models for Long Distance Dispersion Modeling in the Four Corners Region. John A. Nuber. EPA-600/7-78-066. 210

SAM/IA: A Rapid Screening Method for Environmental Assessment of Fossil Energy Process Effluents. L. M. Schalit. EPA-600/7-78-015. 86

Sampling and Analysis Research Program at the Paraho Shale Oil Demonstration. J. E. Cotter. EPA-600/7-78-065. 101

Sampling System Evaluation for High-Temperature, High-Pressure Processes. William Masters. EPA-600/7-78-158. 163

Sampling and Modeling of Non-Point Sources at a Coal-Fired Utility. Gordon T. Brookman, EPA-600/2-77-199. 221

Seasonal Distribution, Trajectory Studies, and Sorption Characteristics of Suspended Particulate Matter in the Northern Puget Sound Region. Edward T. Baker. EPA-600/7-78-126. 219

Second EPA Fine Particle Scrubber Symposium. Richard Parker. EPA-600/2-77-193. 168

Second Symposium on Fugitive Emissions: Measurement and Control. J. King. EPA-600/7-77-148. 178

Second US/USSR Symposium on Particulate Control. Franklin A. Ayer. EPA-600/7-78-037. 156

Seeking Environmental Compatibility A Review of Environmental Issues Related to the Transportation of Alaskan North Slope Crude Oil. Richard D. Brown. EPA-600/7-77-046. 92

Selection and Evaluation of Sorbent Resins for the Collection of Organic Compounds. J. Adams. EPA-600/7-77-044. 173

Seminar on In-Stack Particle Sizing for Particulate Control Device Evaluation. Douglas Van Osdell. EPA-600/2-77-060. 166

Pg. No.

Sensitized Fluorescence for the Detection of Polycyclic Aromatic Hydrocarbons. E. M. Smith. EPA-600/7-78-182. 197

Site Selection and Design for Minimizing Pollution from Underground Coal Mining Operations. Reynold Q. Shorts. EPA-600/7-78-006. 46

Sludge Oxidation in Limestone FGD Scrubbers. Robert H. Borgwardt. EPA-600/7-77-061. 77

SO_2 Abatement for Stationary Sources in Japan. Jumpei Ando. EPA-600/2-76-013a. 126

SO_2 Abatement for Stationary Sources in Japan. J. Ando. EPA-600/7-77-103a. 125

Use of Solar Energy to Heat Anaerobic Digesters; Part I - Technical and Economic Feasibility Study; Part II - Economic Feasibility Throughout the United States. Jess W. Malcolm. EPA-600/2-78-114. 100

Sorbent Selection for the CAFB Residual Oil Gasification Demonstration Plant. E. P. O'Neill. EPA-600/7-77-029. 14

Source Assessment: Coal Refuse Piles, Abandoned Mines and Outcrops, State of the Art. P. K. Chalekode. EPA-600/2-78-004v. 44

Source Assessment: Coal Storage Piles. T. R. Blackwood. EPA-600/2-78-004K. 44

Source Assessment: Open Mining of Coal State of the Art. S. J. Rusek. EPA-600/2-78-004x. 45

Source Assessment: Residential Combustion of Coal. D. G. DeAngelis. EPA-600/2-79-019a. 56

Source Assessment Sampling System: Design and Development. D. E. Blake. EPA-600/7-78-018. 189

Source Assessment: Water Pollutants From Coal Storage Areas. R. A. Wachter. EPA-600/2-78-004m. 44

Source Emission Tests at the Baltimore Demonstration Pyrolysis Facility. John L. Haslbeck. EPA-600/7-78-232. 34

SR-52 Programmable Calculator Programs for Venturi Scrubbers and Electrostatic Precipitators. Leslie E. Sparks. EPA-600/7-78-026. 156

Standards for Practice Manual for the Solvent Refined Coal Liquefaction Process. P. J. Rogoshewski. EPA-600/7-78-091. 30

A State-of-the-Art Report on Intake Technologies. S. S. Ray. EPA-600/7-76-020. 81

	Pg. No.
Status of IERL-RTP Environmental Assessment Methodologies for Fossil Energy Processes. John L. Warren. EPA-600/7-78-151.	88
St. Louis Demonstration Final Report: Refuse Processing Plant Equipment, Facilities, and Environmental Evaluations. D. E. Fiscus. EPA-600/2-77-155a.	102
St. Louis Demonstration Final Report: Power Plant Equipment, Facilities and Environmental Evaluations. P. G. Gorman. EPA-600/2-77-155b.	103
Strip Mine Drainage--Aquatic Impact Assessment. D. B. Cox. EPA-600/7-79-036.	208
Studies of Dust Cake Formation and Structure in Fabric Filtration. Bernard Miller. EPA-600/7-78-095.	159
Studies of the Pressurized Fluidized-Bed Coal Combustion Process. R. C. Hoke. EPA-600/7-76-011.	17
Studies of the Pressurized Fluidized-Bed Coal Combustion Process. R. C. Hoke. EPA-600/7-77-107.	15
Study of a Thermal Aerosol Oil Burner. J. E. Janssen. EPA-600/7-77-108.	105
Sulfates in the Atmosphere, A Progress Report on Project MISTT. W. E. Wilson. EPA-600/7-77-021.	211
Sulfur Reduction Potential of U.S. Coals: A Revised Report of Investigations. J. A. Cavallaro. EPA-600/2-76-091.	25
Supportive Studies in Fluidized-Bed Combustion. A. Jonke. EAP-600/7-77-138.	16
Surface Reactions of Oxides of Sulfur. J. H. Lunsford. EPA-600/7-79-088.	209
Survey of Emissions Control and Combustion Equipment Data In Industrial Process Heating. Peter A. Ketels. EPA-600/7-76-022.	106
Survey of Environmental Regulations Applying to Geothermal Exploration, Development and Use. Mrs. Gene V. Beeland. EPA-600/7-78-014.	100
Survey of Flue Gas Desulfurization Systems: Cholla Station, Arizona Public Service Co. Bernard A. Laseke, Jr. EPA-600/7-78-048a.	115
Survey of Flue Gas Desulfurization Systems: Will County Station, Commonwealth Edison Co. Bernard A. Laseke, Jr. EPA-600/7-78-048b.	115
Survey of Flue Gas Desulfurization Systems: St. Clair Station, Detroit Edison Company. Bernard A. Laseke, Jr. EPA-600/7-78-048c.	116

	Pg. No.
Survey of Flue Gas Desulfurization Systems: La Cygne Station, Kansas City Power and Light Co. Bernard A. Laseke, Jr. EPA-600/7-78-048d.	116
Survey of Flue Gas Desulfurization Systems: Green River Station, Kentucky Utilities. Bernard A. Laseke, Jr. EPA-600/7-78-048e.	116
Survey of Projects Concerning Conventional Combustion Environmental Assessments. W. E. Thompson. EPA-600/7-78-139.	136
Survey of Sulfate, Nitrate, and Acid Aerosol Emissions and Their Control. J. F. Kircher. EPA-600/7-77-041.	172
Symposium on Environment and Energy Conservation (November 1975, Denver, Colorado). Franklin A. Ayer. EPA-600/2-76-212.	107
Symposium on Flue Gas Desulfurization--Hollywood, FL, November 1977 (Volume I). Franklin A. Ayer. EPA-600/7-78-058a.	119
Symposium on Flue Gas Desulfurization--Hollywood, FL, November 1977 (Volume II). Franklin A. Ayer. EPA-700/7-78-058b.	119
Symposium on Flue Gas Desulfurization--New Orleans, March 1976; Volume I. R. D. Stern. EPA-600/2-76-136a.	127
Symposium on Flue Gas Desulfurization--New Orleans, March 1976; Volume II. R. D. Stern. EPA-600/2-76-136b.	127
Symposium on New Concepts for Fine Particle Control. Teoman Ariman. EPA-600/7-78-170.	164
Symposium on Particulate Control in Energy Processes. David E. Blake. EPA-600/7-76-010.	179
Symposium on the Transfer and Utilization of Particulate Control Technology: Vol. 3. Scrubbers, Advanced Technology, and HTP Applications. F. P. Venditti. EPA-600/7-79-044c.	152
Symposium on the Transfer and Utilization of Particulate Control Technology: Vol. 4. Fugitive Dusts and Sampling, Analysis and Characterization of Aerosols. F. P. Venditti. EPA-600/7-79-044d.	152
Symposium Proceedings: Process Measurements for Environmental Assessment. Eugene A. Burns. EPA-600/7-78-168.	90
Synthetic Fuel Production From Solid Wastes. Roy C. Feber. EPA-600/2-77-147.	35
Technical Assessment of NO_x Removal Processes for Utility Application. H. L. Faucett. EPA-600/7-77-127.	143

Pg. No.

Technical Manual: A Survey of Equipment and Methods for Particulate Sampling in Industrial Process Streams. W. B. Smith. EPA-600/7-78-043. 157

Technology and Economics of Flue Gas NO_x Oxidation by Ozone. J. W. Harrison. EPA-600/7-76-033. 147

Test and Evaluation of Potassium Sensors in Fresh and Salt Water. Gary K. Ward. EPA-600/7-79-057. 185

Test of Fabric Filtration Materials. Jan R. Koscianowski. EPA-600/7-79-087. 154

Testing Program for Mining Coal in an Oxygen Free Atmosphere - Volume 1. R. C. Taliaferro. EPA-600/7-78-080a. 48

Testing Program for Mining Coal in an Oxygen Free Atmosphere - Volume II - Appendices. R. C. Taliaferro. EPA-600/7-78-080b. 48

Tests of Fabric Filtration Materials. Jan R. Koscianowski. EPA-600/7-78-056. 157

Third Symposium on Fabric Filters for Particulate Collection. N. Suprenant. EPA-600/7-78-087. 158

Tioga River Mine Drainage Abatement Project. A. F. Miorin. EPA-600/7-79-035. 42

Trace Analysis of Arsenic by Colorimetry, Atomic Absorption and Polarography. Lyman H. Howe. EPA-600/7-77-036. 200

Trace Element Characterization of Coal Wastes--First Annual Report. Eugene M. Wewerka. EPA-600/7-78-028. 46

Trace Element Characterization of Coal Wastes--Second Annual Progress Report. E. M. Wewerka. EPA-600/7-78-028a. 47

Trace Organics Variation Across the Wastewater Treatment System of a Class-B Refinery. Wyman Harrison. EPA-600/7-78-125. 195

TVA's 1-MW Pilot Plant: Final Report on High-Velocity Scrubbing and Vertical Duct Mist Elimination. G. Hollinden. EPA-600/7-77-019. 171

TVA's 1-MW Pilot Plant: Vertical Duct Mist Elimination Testing--Progress Report. G. A. Hollinden. EPA-600/7-76-021. 180

Typical Costs for Electric Energy Generation and Environmental Controls. M. G. Klett. EPA-600/7-79-026. 84

Underway Water Sampling Systems-An Applications Study. Ronald New. EPA-600/7-77-121. 204

Pg. No.

University of Washington Electrostatic Scrubber Tests at a Steel Plant. M. J. Pilat. EPA-600/7-78-177a. 164

Use of Electrostatically Charged Fog for Control of Fugitive Dust Emissions. Stuart A. Hoenig. EPA-600/7-77-131. 177

Use of Potassium Ferrate in Oxygen Demand Measurement. James D. Carr. EPA-600/7-77-099. 203

USER's Manual for Premining Planning of Eastern Surface Coal Mining, Volume I: Executive Summary. R. V. Ramani. EPA-600/7-78-180. 51

Utility Boiler Design/Cost Comparison: Fluidized-Bed Combustion vs. Flue Gas Desulfurization. John T. Reese. EPA-600/7-77-126. 16

Vegetative Stabilization of Spent Oil Shales, Vegetation Moisture Salinity & Runoff 1973-1976. H. P. Harbert. EPA-600/7-78-021. 46

Venturi Scrubber Performance Model. Shui-Chow Yung. EPA-600/2-77-172. 168

The Vertical Planar Motion Mechanism; A Dynamic Test Apparatus for Evaluating Current Meters and Other Marine Instrumentation. A. N. Kalvaitis. EPA-600/7-78-145. 197

A Washability and Analytical Evaluation of Potential Pollution from Trace Elements in Coal. J. A. Cavallaro. EPA-600/7-78-038. 22

Washington State Refineries: Petroleum, Petroleum Derivatives and Wastewater Effluent Characteristics. Joseph T. Pizzo. EPA-600/7-78-040. 218

Water Conservation and Pollution Control in Coal Conversion Processes. David J. Goldstein. EPA-600/7-77-065. 36

Water Consumption and Costs for Various Steam Electric Power Plant Cooling Systems. M. C. Hu. EPA-600/7-78-157. 89

Water Recycle/Reuse Alternatives in Coal-Fired Steam-Electric Power Plants: Volume I. Plant Studies and General Implementation Plans. James G. Noblett. EPA-600/7-78-055a. 72

Water Recycle/Reuse Alternatives in Coal-Fired Steam-Electric Power Plants: Volume II. Appendixes. James G. Noblett. EPA-600/7-78-055b. 73

Water-Related Environmental Effects in Fuel Conversion: Volume I. Summary. Harris Gold. EPA-600/7-78-197a. 33

Water-Related Environmental Effects in Fuel Conversion: Volume II. Appendices. Harris Gold. EPA-600/7-78-197b. 33

Water Requirements to: Steam-Electric Power Generation and Synthetic Fuel Plants in the Western United States. H. Gold. EPA-600/7-77-037. 35

Pg. No.

Western Energy/Environment Monitoring Atlas. Not identified. EPA-600/7-77-047a. 200

Western Energy/Environment Monitoring Atlas: Overhead Monitoring Appendix. Not identified. EPA-600/7-77-047b. 201

Western Energy/Environment Monitoring Study Planning and Coordination Summary. Gregory J. D'Alessio. EPA-600/7-77-024. 199

Western Energy Sulfate/Nitrate Monitoring Network Progress Report. Michael J. Pearson. EPA-600/7-79-074. 187

Wet/Cooling Systems for Fossil-Fueled Power Plants: Water Conservation and Plume Abatement. M. C. Hu. EPA-600/7-77-137. 79

Wet/Dry Cooling and Cooling Tower Blowdown Disposal in Synthetic Fuel and Steam -Electric Power Plants. Harris Gold. EPA-600/7-79-085. 209

Work Plan for Completing a Technology Assessment of Western Energy Resource Development. Irvin L. White. EPA-600/7-78-012. 63

Author(s) Index

Pg. No.

Abelson, H. I. Procedures Manual for Environmental Assessment of Fluidized-Bed Combustion Processes. EPA-600/7-77-009. 13

Adams, J. Selection and Evaluation of Sorbent Resins for the Collection of Organic Compounds. EPA-600/7-77-044. 173

Adams, J. W. Effect of Handling Procedures on Sample Quality. EPA-600/7-78-017. 189

Adams, R. C. Demonstration of Wellman-Lord/Allied Chemical FGD Technology: Boiler Operating Characteristics. EPA-600/7-77-014. 122

Altschuler, M. EPA Program Status Report: Synthetic Fuels from Coal (Including Process Overview with Emphasis on Environmental Considerations). EPA-600/7-77-102. 36

Alvin, M. A. Evaluation of Trace Element Release from Fluidized-Bed Combustion Systems. EPA-600/7-78-050. 11

Ananth, K. P. Environmental Assessment of Waste-To-Energy Processes: Source Assessment Document. EPA-600/7-77-091. 105

Ando, J. SO_2 Abatement for Stationary Sources in Japan. EPA-600/2-76-013a. 126

Ando, J. NO_x Abatement for Stationary Sources in Japan. EPA-600/2-76-013b. 143

Ando, J. SO_2 Abatement for Stationary Sources in Japan. EPA-600/7-77-103a. 125

Ando, J. NO_x Abatement for Stationary Sources in Japan. EPA-600/7-77-103b. 142

Anderson, J. Remote Monitoring of Coal Strip Mine Rehabilitation. EPA-600/7-78-149. 50

Appel, B. R. Comparison of Wet Chemical and Instrumental Methods for Measuring Airborne Sulfate, Final Report. EPA-600/7-77-128. 204

Ariman, T. Symposium on New Concepts for Fine Particle Control. EPA-600/7-78-170. 164

	Pg. No.
Attari, A. Fate of Trace and Minor Constituents of Coal During Gasification. EPA-600/2-76-258.	39
Attari, A. Initial Environmental Test Plan for Source Assessment of Coal Gasification. EPA-600/2-76-259.	39
Axworthy, A. E. Chemistry of Fuel Nitrogen Conversion to Nitrogen Oxides in Combustion. EPA-600/2-76-039.	144
Ayer, F. A. Environmental Aspects of Fuel Conversion Technology, II (December 1975, Hollywood, Florida). EPA-600/2-76-149.	106
Ayer, F. A. Symposium on Environment and Energy Conservation (November 1975, Denver, Colorado). EPA-600/2-76-212.	107
Ayer, F. A. Second US/USSR Symposium on Particulate Control. EPA-600/7-78-037.	156
Ayer, F. A. Symposium on Flue Gas Desulfurization--Hollywood, FL, November 1977 (Volume I). EPA-600/7-78-058a.	119
Ayer, F. A. Symposium on Flue Gas Desulfurization--Hollywood, FL November 1977 (Volume II). EPA-600/7-78-058b.	119
Ayer, F. A. Environmental Aspects of Fuel Conversion Technology, III (September 1977, Hollywood, Florida). EPA-600/7-78-063.	29
Babb, M. C. Application of Computer Graphics to Environmental Assessment of Energy Systems. EPA-600/7-78-076.	87
Baker, E. T. Seasonal Distribution, Trajectory Studies, and Sorption Characteristics of Suspended Particulate Matter in the Northern Puget Sound Region. EPA-600/7-78-126.	219
Balzhiser, R. E. EPA Program Conference Report - Coal Cleaning - An Option for Increased Coal Utilization. EPA-600/7-77-130.	25
Barker, J. L. First Order Estimates of Energy Requirements for Pollution Control. EPA-600/7-78-022.	63
Barnes, H. M. Rapid Method for Determining NO_x Emissions in Flue Gases. EPA-600/2-76-094.	145
Barnhisel, R. I. Reclamation of Surface Mined Coal Spoils. EPA-600/7-77-093.	222
Barrier, J. W. Economics of Disposal of Lime/Limestone Scrubbing Wastes: Untreated and Chemically Treated Wastes. EPA-600/7-78-023a.	111
Barrier, J. W. Economics of Disposal of Lime/Limestone Scrubbing Wastes: Sludge/Flyash Blending and Gypsum Systems. EPA-600/7-79-069.	70

	Pg. No.
Bazan, J. A. Chemically Active Fluid Bed (CAFB) Process Solids-Transport Studies. EPA-600/7-77-114.	16
Bee. R. Demonstration/Evaluation of the Cat-Ox Flue Gas Desulfurization System--Final Report. EPA-600/2-78-063.	43
Beeland, G. V. Survey of Environmental Regulations Applying to Geothermal Exploration, Development and Use. EPA-600/7-78-014.	100
Benkley, C. W. MESOPAC: A Mesoscale Meteorology Package. EPA-600/7-79-055.	208
Bickelhaupt, R. E. Measurement of Fly Ash Resistivity Using Simulated Flue Gas Environments. EPA-600/7-78-035.	156
Biedell, E. L. EPA Evaluation of Bahco Industrial Boiler Scrubber System at Rickenbacker AFB. EPA-600/7-78-115.	120
Bishop, C. T. Anion Exchange Method for the Determination of Plutonium in Water: Single-Laboratory Evaluation and Interlaboratory Collaborative Study. EPA-600/7-78-122.	194
Blackwood, T. R. Source Assessment: Coal Storage Piles. EPA-600/2-78-004.	44
Blake, D. E. Source Assessment Sampling System: Design and Development. EPA-600/7-78-018.	189
Blake, D. E. Symposium on Particulate Control in Energy Processes. EPA-600/7-76-010.	179
Bombaugh, K. J. Analyses of Grab Samples from Fixed-Bed Coal Gasification Processes. EPA-600/7-77-141.	37
Bongers, L. H. Bromine Chloride--An Alternative to Chlorine for Fouling Control in Condenser Cooling Systems. EPA-600/7-77-053.	222
Booth, R. L. Evaluation of the U.S. Geological Survey Laboratory, Denver, CO. EPA-600/7-78-083.	191
Booth, R. L. Evaluation of the United States Geological Survey Laboratory, Atlanta, Georgia. EPA-600/7-78-137.	196
Borgwardt, R. H. Sludge Oxidation in Limestone FGD Scrubbers. EPA-600/7-77-061.	77
Bornstein, L. J. Reuse of Power Plant Desulfurization Waste Water. EPA-600/2-76-024.	80
Bowen, J. S. Proceedings of the Second Stationary Source Combustion Symposium Volume I. Small Industrial, Commercial, and Residential Systems. EPA-600/7-77-073a.	92

	Pg. No.
Bowen, J. S. Proceedings of the Second Stationary Source Combustion Symposium Volume II. Utility and Large Industrial Boilers. EPA-600/7-77-073b.	93
Bowen, J. S. Proceedings of the Second Stationary Source Combustion Symposium Volume III. Stationary Engine, Industrial Process Combustion System, and Advanced Processes. EPA-600/7-77-073c.	93
Bowen, J. S. Proceedings of the Second Stationary Source Combustion Symposium Volume IV. Fundamental Combustion Research. EPA-600/7-77-073d.	93
Bowen, J. S. Proceedings of the Second Stationary Source Combustion Symposium Volume V. Addendum. EPA-600/7-77-073e.	94
Bowen, J. S. Proceedings of the Third Stationary Source Combustion Symposium; Volume I. Utility, Industrial, Commercial, and Residential Systems. EPA-600/7-79-050a.	84
Bowen, J. S. Proceedings of the Third Stationary Source Combustion Symposium; Volume II. Advanced Processes and Special Topics. EPA-600/7-79-050b.	85
Bowen, J. S. Proceedings of the Third Stationary Source Combustion Symposium; Volume III. Stationary Engine and Industrial Process Combustion Systems. EPA-600/7-79-050c.	85
Bowen, J. S. Proceedings of the Third Stationary Source Combustion Symposium; Volume IV. Fundamental Combustion Research and Environmental Assessment. EPA-600/7-79-050d.	85
Bowen, J. S. Proceedings of the Third Stationary Source Combustion Symposium; Volume V. Addendum. EPA-600/7-79-050e.	86
Breslin, M. K. Performance Testing of Oil Mop Zero Relative Velocity Oil Skimmer. EPA-600/7-78-060.	47
Bretthauer, E. W. Characterization of Emissions from Plutonium-Uranium Oxide Fuel Fabrication. EPA-600/7-77-079.	202
Brookman, G. T. Sampling and Modeling of Non-Point Sources at a Coal-Fired Utility. EPA-600/2-77-199.	221
Brown, R. D. Seeking Environmental Compatibility A Review of Environmental Issues Related to the Transportation of Alaskan North Slope Crude Oil. EPA-600/7-77-046.	92
Brown, K. W. Investigations of Soils and Vegetative Damage: Vicinity of Hartsfield, Atlanta's International Airport--Mountain View, GA. EPA-600/7-78-064.	218

Pg. No.

Bucek, M. F. Long-Term Environmental Effectiveness of Close Down Procedures - Eastern Underground Coal Mines. EPA-600/7-77-083. 54

Bucy, J. I. Potential Abatement Production and Marketing of Byproduct Sulfuric Acid in the U.S. EPA-600/7-78-070. 73

Budden, K. T. Environmental Assessment of Coal Liquefaction: Annual Report. EPA-600/7-78-019. 28

Burns, E. A. Symposium Proceedings: Process Measurements for Environmental Assessment. EPA-600/7-78-168. 90

Burrington, R. K. Overfire Air Technology for Tangentially Fired Utility Boilers Burning Western U.S. Coal. EPA-600/7-77-117. 142

Bush, J. R. Development of a High-Temperature/High-Pressure Electrostatic Precipitator. EPA-600/7-77-132. 177

Bush, P. V. An Electrostatic Precipitator Backup for Sampling Systems. EPA-600/7-78-114. 161

Calvert, S. Effects of Temperature and Pressure on Particle Collection Mechanisms: Theoretical Review. EPA-600/7-77-002. 170

Calvert, S. Fine Particle Collection by a Flux-Force/Condensation Scrubber: Pilot Demonstration. EPA-600/2-77-238. 169

Calvert, S. Evaluation of Three Industrial Particulate Scrubbers. EPA-600/2-78-032. 154

Calvert, S. Evaluation of Four Novel Fine Particulate Collection Devices. EPA-600/2-78-062. 155

Camp, D. C. Intercomparison of Samplers Used in the Determination of Aerosol Composition. EPA-600/7-78-118. 194

Cantes, G. Y. Assessment of Coal Cleaning Technology: An Evaluation of Chemical Coal Cleaning Processes. EPA-600/7-78-173a. 24

Carr, J. D. Use of Potassium Ferrate in Oxygen Demand Measurement. EPA-600/7-77-099. 203

Carter, W. A. Emission Reduction on Two Industrial Boilers with Major Combustion Modifications. EPA-600/7-78-099a. 135

Caruccio, F. T. Paleoenvironment of Coal and Its Relation to Drainage Quality. EPA-600/7-77-067. 53

Cass, R. W. Fractional Efficiency of an Electric Arc Furnace Baghouse. EPA-600/7-77-023. 172

Pg. No.

Cato, G. A. Field Testing: Application of Combustion Modifications to Control Pollutant Emissions from Industrial Boilers--Phase II. EPA-600/2-76-086a. 145

Cavallaro, J. A. Sulfur Reduction Potential of U.S. Coals: A Revised Report of Investigations. EPA-600/2-76-091. 25

Cavallaro, J. A. A Washability and Analytical Evaluation of Potential Pollution from Trace Elements in Coal. EPA-600/7-78-038. 22

Cavanaugh, E. C. Atmospheric Pollution Potential from Fossil Fuel Resource Extraction, On-Site Processing and Transportation. EPA-600/2-76-064. 55

Cavanaugh, E. C. Hydrocarbon Pollutants from Stationary Sources. EPA-600/7-77-110. 176

Cavanaugh, E. C. Environmental Assessment Data Base for Low/Medium-Btu Gasification Technology: Volume I. Technical Discussion. EPA-600/7-77-125a. 37

Cavanaugh, E. C. Environmental Assessment Data Base for Low/Medium-Btu Gasification Technology: Volume II. Appendices A-F. EPA-600/7-77-125b. 37

Cananaugh, E. C. Environmental Assessment of Low/Medium-Btu Gasification: Annual Report. EPA-600/7-77-142. 38

Chalekode, P. K. Source Assessment: Coal Refuse Piles, Abandoned Mines and Outcrops, State of the Art. EPA-600/2-78-004v. 44

Chan, P. W. A Real-Time Measuring Device for Dense Particulate Systems. EPA-600/2-77-022. 198

Ciliberti, D. F. High Temperature Particulate Control with Ceramic Filters. EPA-600/2-77-207. 169

Cleland, J. G. Multimedia Environmental Goals for Environmental Assessment, Volume I. EPA-600/7-77-136a. 95

Cleland, J. G. Multimedia Environmental Goals for Environmental Assessment, Volume II. MEG Charts and Background Information. EPA-600/7-77-136b. 95

Cleland, J. G. Pollutants from Synthetic Fuels Production: Facility Construction and Preliminary Tests. EPA-600/7-78-171. 31

Cifford, P. An Assessment of Mercury Emissions from Fossil Fueled Power Plants. EPA-600/7-78-146. 214

Colley, J. D. Assessment of Technology for Control of Toxic Effluents from the Electric Utility Industry. EPA-600/7-78-090. 88

Pg. No.

Conn, W. D. Eurpoean Developments in the Recovery of Energy and Materials from Municipal Sold Waste. EPA-600/7-77-040. 103

Cooper, L. Measurement of High-Temperature, High-Pressure Processes: Annual Report. EPA-600/7-78-011. 155

Cotter, J. E. Sampling and Analysis Research Program at the Paraho Shale Oil Demonstration. EPA-600/7-78-065. 101

Cox, D. B. Strip Mine Drainage--Aquatic Impact Assessment. EPA-600/7-79-036. 208

Cox, D. B. Characterization of Coal Pile Drainage. EPA-600/7-79-051. 20

Crawford, A. R. Control of Utility Boiler and Gas Turbine Pollutant Emissions by Combustion Modification--Phase I. EPA-600/7-78-036a. 134

Crawford, K. W. A Preliminary Assessment of the Environmental Impacts from Oil Shale Developments. EPA-600/7-77-069. 54

Crowe, J. L. Lime/Limestone Scrubbing Sludge Characterization--Shawnee Test Facility. EPA-600/7-77-123. 78

Crowe, J. L. Characterization of Solid Residues from Fluidized-Bed Combustion Units. EPA-600/7-78-135. 12

Curran, G. P. High-Temperature Desulfurization of Low-Btu Gas. EPA-600/7-77-031. 123

Cushing, K. M. Particulate Sampling Support: 1977 Annual Report. EPA-600/7-78-009. 155

Cushing, K. M. Procedures Manual for Fabric Filter Evaluation. EPA-600/7-78-113. 161

Ctvrtnicek, T. E. Application of Foam Scrubbing to Fine Particle Control, Phase II. EPA-600/2-77-110. 167

Ctvrtnicek, T. E. Applicability of NO$_x$ Combustion Modifications to Cyclone Boilers (Furnaces). EPA-600/7-77-006. 141

D'Alessio, G. D. Western Energy/Environment Monitoring Study Planning and Coordination Summary. EPA-600/7-77-024. 199

D'Alessio, G. D. Geothermal Industry Position Paper: EPA Regulatory Options and R&D Needs. EPA-600/7-77-092. 105

Daniel, B. E. EPA Fabric Filtration Studies: Bag Cleaning Technology (High Temperature Tests). EPA-600/7-77-095b. 175

DeAngelis, D. G. Source Assessment: Residential Combustion of Coal. EPA-600/2-79-019a. 56

Pg. No.

Dehne, H. Design and Construction of a Fluidized-Bed Combustion Sampling and Analytical Test Rig. EPA-600/7-78-166. 13

Delleney, R. D. The Effect of Flue Gas Desulfurization Availability on Electric Utilities Volume I. Executive Summary. EPA-600/7-78-031a. 112

Delleney, R. D. The Effect of Flue Gas Desulfurization Availability on Electric Utilities Volume II. Technical Report. EPA-600/7-78-031b. 112

Dennis, R. Filtration Model for Coal Fly Ash with Glass Fabrics. EPA-600/7-77-084. 174

Dennis, R. Fabric Filter Model Format Change; Volume I. Detailed Technical Report. EPA-600/7-79-043a. 151

Devitt, T. Flue Gas Desulfurization System Capabilities for Coal-fired Steam Generators Volume I. Executive Summary. EPA-600/7-78-032a. 113

Devitt, T. Flue Gas Desulfurization System Capabilities for Coal-Fired Steam Generators Volume II. Technical Report. EPA-600/7-78-032b. 113

Dibner, P. C. Response of a Salt Marsh to Oil Spill and Cleanup: Biotic and Erosional Effects in the Hackensack Meadowlands, New Jersey. EPA-600/7-78-109. 49

DiNovo, S. T. Preliminary Environmental Assessment of Biomass Conversion to Synthetic Fuels. EPA-600/7-78-204. 34

Donovan, R. P. EPA. Fabric Filtration Studies: Bag Aging Effects. EPA-600/7-77-095a. 175

Donovan, R. P. EPA Fabric Filtration Studies: Influence of Dust Properties on Particle Penetration. EPA-600/7-78-141. 162

Dorigan, J. Health Effects Related Research Summary, FY75-77. EPA-600/7-77-112. 215

Duke, K. M. IERL-RTP Procedures Manual: Level 1 Environmental Assessment Biological Tests for Pilot Studies. EPA-600/7-77-043. 200

Dykema, O. W. Inventory of Combustion-Related Emissions from Stationary Sources. EPA-600/7-76-012. 146

Dykema, O. W. Inventory of Combustion-Related Emissions From Stationary Sources (First Update). EPA-600/2-77-066a. 139

Dykema, O. W. Effects of Combustion Modifications for NOx Control on Utility Boiler Efficiency and Combustion Stability. EPA-600/2-77-190. 140

Dykema, O. W. Combustion Modification Effects on NOx Emissions from Gas-, Oil-, and Coal-Fired Utility Boilers. EPA-600/2-78-217. 133

	Pg. No.
Eckbreth, A. C. Review of Laser Raman and Fluorescence Techniques for Practical Combustion Diagnostics. EPA-600/7-77-066.	201
Eckbreth, A. C. Investigation of Saturated Laser Fluorescence and CARS Spectroscopic Techniques for Combustion Diagnostics. EPA-600/7-78-104.	193
Eckstein, L. EPA Program Status Report: Oil Shale. EPA-600/7-78-020.	28
Ehrenspeck, H. Oil Pollution Reports, Vol. 5 No. 2 (February 1978 - May 1978). EPA-600/7-78-160.	50
Ehrenspeck, H. Oil Pollution Reports, Vol. 5 No. 3 (June 1978 - September 1978). EPA-600/7-78-218.	51
Eimutis, E. C. Air, Water, and Solid Residue Prioritization Models for Conventional Combustion Sources. EPA-600/2-76-176.	97
Engleman, V. S. Proceedings of the Engineering Foundation Conference on Clean Combustion of Coal. EPA-600/7-78-073.	23
Englesson, G. A. Nonwater Quality Impacts of Closed-Cycle Cooling and the Interaction of Stack Gas and Cooling Tower Plumes. EPA-600/7-79-090.	71
Ensor, D. S. Century Industrial Products FRP-100 Wet Scrubber Evaluation. EPA-600/7-77-116.	126
Eppright, B. R. Impact of Point Source Control Strategies on NO_2 Levels. EPA-600-7-78-212.	138
Estes, E. D. Level 1 Environmental Assessment Performance Evaluation EPA-600/7-79-032.	84
Evans, B. D. Environmental Residuals Output Model for Operation and Expansion of an Electric Power System. EPA-600/7-79-077.	70
Evans, B. D. Environmental Residuals Output Model for Operation and Expansion of an Electric Power System. EPA-600/7-77-134.	79
Farmer, M. H. Application of Fluidized-Bed Technology to Industrial Boilers. EPA-600/7-77-011.	13
Farthing, W. E. Evaluation of the PILLS IV. EPA-600/7-78-130.	162
Faucett, H. L. Technical Assessment of NO_xY Removal Processes for Utility Application. EPA-600/7-77-127.	143
Feazel, C. E. Recent USSR Literature on Control of Particulate Emissions from Stationary Sources. EPA-600/2-77-084.	167

Pg. No.

Feber, R. C. Synthetic Fuel Production From Solid Wastes. EPA-600/2-77-147. 35

Felix, L. G. Inertial Cascade Impactor Substrate Media for Flue Gas Sampling. EPA-600/7-77-060. 174

Felix, L. G. Apitron Electrostatically Augmented Fabric Filter Evaluation. EPA-600/7-79-070. 153

Fennelly, P. F. Preliminary Environmental Assessment of Coal-Fired Fluidized-Bed Combustion Systems. EPA-600/7-77-054. 15

Fiscus, D. E. St. Louis Demonstration Final Report: Refuse Processing Plant Equipment, Facilities, and Environmental Evaluations. EPA-600/2-77-155a. 102

Fisher, K. T. Application of Combustion Modifications to Industrial Combustion Equipment (Data Supplement A). EPA-600/7-79-015b. 132

Fleming, D. K. Pilot Plant Study of Conversion of Coal to Low Sulfur Fuel. EPA-600/2-77-206. 25

Fling, R. B. Disposal of Flue Gas Cleaning Wastes: EPA Shawnee Field Evaluation-Initial Report. EPA-600/2-76-070. 80

Fling. R. B. Disposal of Flue Gas Cleaning Wastes: EPA Shawnee Field Evaluation-- Second Annual Report. EPA-600/7-78-024. 111

Frazier, N. A. Production and Processing of U.S. Tar Sands, An Environmental Assessment. EPA-600/7-76-035. 39

Frazier, N. A. Offshore Oil and Gas Extraction, An Environmental Review. EPA-600/7-77-080. 54

Frederick, E. R. Electrostatic Effects in Fabric Filtration: Volume II. Triboelectric Measurements and Bag Performance (Annotated Data). EPA-600/7-78-142b. 163

Frischknecht, N. Revegetating Processed Oil Shale and Coal Spoils on Semi-Arid Lands - Interim Report. EPA-600/7-79-068. 21

Gabrielson, J. E. Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site A. EPA-600/7-78-136a. 196

Gabrielson, J. E. Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site A (Data Supplement). EPA-600/7-78-136b. 196

Gabrielson, J. E. Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site B. EPA-600/7-79-041a. 132

Pg. No.

Gabrielson, J. E. Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site B (Data Supplement). EPA-600/7-79-041b. 133

Galeski, J. B. Particle Size Definitions for Particulate Data Analysis. EPA-600/7-77-129. 176

Gallant, R. F. Characterization of Sorbent Resins for Use in Environmental Sampling. EPA-600/7-78-054. 190

Gandel, M. G. Assessment of Large-Scale Photovoltaic Materials Production. EPA-600/7-77-087. 104

Ghassemi, M. Environmental Assessment of High-Btu Gasification: Annual Report. EPA-600/7-78-025. 29

Ghassemi, M. Environmental Assessment Data Base for High-Btu Gasification Technology: Volume I. Technical Discussion. EPA-600/7-78-186a. 32

Ghassemi, M. Environmental Assessment Data Base for High-Btu Gasification Technology: Volume II. Appendices A, B, and C. EPA-600/7-78-186b. 32

Ghassemi, M. Environmental Assessment Data Base for High-Btu Gasification Technology: Volume III. Appendices D, E, and F. EPA-600/7-78-186c. 33

Ghassemi, M. Applicability of Petroleum Refinery Control Technologies to Coal Conversion. EPA-600/7-78-190. 33

Giammar, R. D. Emissions from Residential and Small Commercial Stoker-Coal-Fired Boilers Under Smokeless Operation. EPA-600/7-76-029. 180

Giammar, R. D. Experimental Evaluation of Fuel Oil Additives for Reducing Emissions and Increasing Efficiency of Boilers. EPA-600/2-77-008b. 91

Gikis, B. J. Preliminary Environmental Assessment of Energy Conversion Processes for Agricultural and Forest Product Residues; Volume I. EPA-600/7-78-047. 100

Gilfrich, J. V. Portable Vacuum X-Ray Spectrometer, Instrument for On-Site Analysis of Airborne Particulate Sulfur and Other Elements. EPA-600/7-78-103. 193

Glass, N. R. Environmental Effects of Increased Coal Utilization: Ecological Effects of Gaseous Emissions from Coal Combustion. EPA-600/7-78-108. 219

Gleason, V. E. Coal and the Environment Abstract Series, Mine Drainage Bibliography 1910-1976. EPA-600/2-77-082. 220

	Pg. No.
Gooch, J. P. Particulate Collection Efficiency Measurements on an ESP Installed on a Coal-Fired Utility Boiler. EPA-600/2-77-011.	165
Gold, H. Water Requirements to: Steam-Electric Power Generation and Synthetic Fuel Plants in the Western United States. EPA-600/7-77-037.	35
Gold, H. Water-Related Environmental Effects in Fuel Conversion: Volume I. Summary. EPA-600/7-78-197a.	33
Gold, H. Water-Related Environmental Effects in Fuel Conversion: Volume II. Appendices. EPA-600/7-78-197b.	33
Gold, H. Wet/Dry Cooling and Cooling Tower Blowdown Disposal in Synthetic Fuel and Steam-Electric Power Plants. EPA-600/7-79-085.	70
Goldstein, D. J. Water Conservation and Pollution Control in Coal Conversion Processes. EPA-600/7-77-065.	36
Gorman, P. G. St. Louis Demonstration Final Report: Power Plant Equipment, Facilities and Environmental Evaluations. EPA-600/2-77-155b.	103
Greene, M. W. Evaluation of Monitoring Systems for Power Plant and Sulfur Recovery Plant Emissions. EPA-600/2-76-171.	206
Gregory, N. EPA Utility FGD Survey: February-March 1978. EPA-600/7-78-051b.	117
Haan, C. T. Onsite Control of Sedimentation Utilizing the Modified Block-Cut Method of Surface Mining. EPA-600/7-77-068.	53
Hahn, P. B. Fusion Method for the Measurement of Plutonium in Soil: Single-Laboratory Evaluation and Interlaboratory Collaborative Test. EPA-600/7-77-078.	202
Hall, E. H. Comparison of Fossil and Wood Fuels. EPA-600/2-76-056.	96
Hall, E. H. Physical Coal Cleaning for Utility Boiler SO_2 Emission Control. EPA-600/7-78-034.	22
Hamersma, J. W. Field Test Sampling/Analytical Strategies and Implementation Cost Estimates: Coal Gasification and Flue Gas Desulfurization. EPA-600/2-76-093b.	38
Hamersma, J. W. Emissions Assessment of Conventional Stationary Combustion Systems: Methods and Procedures Manual for Sampling and Analysis. EPA-600/7-79-029a.	150
Harbert, H. P., III. Vegetative Stabilization of Spent Oil Shales, Vegetation Moisture Salinity & Runoff 1973-1976. EPA-600/7-78-021.	46

	Pg. No.
Harner, D. Environmental Overview of Texas Lignite Development. EPA-600/7-78-003.	45
Harris, J. C. EPA/IERL-RTP Interim Procedures for Level 2 Sampling and Analysis of Organic Materials. EPA-600/7-78-016.	189
Harrison, J. W. Technology and Economics of Flue Gas NO_x Oxidation by Ozone. EPA-600/7-76-033.	147
Harrison, W. Trace Organics Variation Across the Wastewater Treatment System of a Class-B Refinery. EPA-600/7-78-125.	195
Hartley, R. P. Pollution Control Guidance for Geothermal Energy Development. EPA-600/7-78-101.	101
Haslbeck, J. L. Source Emission Tests at the Baltimore Demonstration Pyrolysis Facility. EPA-600/7-78-232.	34
Head, H. N. EPA Alkali Scrubbing Test Facility: Advanced Program, Third Progress Report. EPA-600/7-77-105.	125
Heap, M. P. Burner Criteria for NO_x Control; Volume I. Influence of Burner Variables on NO_x in Pulverized Coal Flames. EPA-600/2-76-061a.	144
Heap, M. P. Reduction of Nitrogen Oxide Emissions from Field Operating Package Boilers--Phase III of III. EPA-600/2-77-025.	139
Hecht, N. L. Investigation of Advanced Thermal-Chemical Concepts for Obtaining Improved MSW-Derived Products. EPA-600/7-78-143.	102
Hernandez, D. J. Energy Consumption of Advanced Wastewater Treatment at Ely, Minnesota. EPA-600/7-78-001.	71
Hicks, B. B. An Examination of Some Micrometeorological Methods for Measuring Dry Deposition. EPA-600/7-78-116.	194
Hill, R. D. Acid Mine Drainage and Subsidence: Effects of Increased Coal Utilization. EPA-600/1-78-068.	45
Hissong, D. W. Reductant Gases for Flue Gas Desulfurization Systems. EPA-600/2-76-130.	127
Hites, R. A. Combustion Research on Characterization of Particulate Organic Matter from Flames. EPA-600/7-78-167.	163
Hoenig, S. A. Use of Electrostatically Charged Fog for Control of Fugitive Dust Emissions. EPA-600/7-77-131.	177
Hoenig, S. A. Fugitive and Fine Particle Control Using Electrostatically Charged Fog. EPA-600/7-79-078.	154

Pg. No.

Hoffman-Muntner Corporation. Engineering/Economic Analyses of Coal Preparation with SO_2 Cleanup Processes for Keeping Higher Sulfur Coals in the Energy Market. EPA-600/7-78-002. 22

Hoffman-Muntner. An Engineering/Economic Analysis of Coal Preparation Plant Operation and Cost. EPA-600/7-78-124. 23

Hoke, R. C. Studies of the Pressurized Fluidized-Bed Coal Combustion Process. EPA-600/7-76-011. 17

Hoke, R. C. Studies of the Pressurized Fluidized-Bed Coal Combustion Process. EPA-600/7-77-107. 15

Hoke, R. C. Miniplant Studies of Pressurized Fluidized-Bed Coal Combustion: Third Annual Report. EPA-600/7-78-069. 12

Holcombe, L. J. Characterization of Carbide Lime to Identify Sulfite Oxidation Inhibitors. EPA-600/7-78-176. 121

Hollinden, G. A. TVA's 1-MW Pilot Plant: Vertical Duct Mist Elimination Testing--Progess Report. EPA-600/7-76-021. 180

Hollinden, G. TVA's 1-MW Pilot Plant: Final Report on High-velocity Scrubbing and Vertical Duct Mist Elimination. EPA-600/7-77-019. 171

Hounslow, A. Overburden Mineralogy as Related to Ground-Water Chemical Changes in Coal Strip Mining. EPA-600/7-78-156. 50

Howe, L. H. Trace Analysis of Arsenic by Colorimetry, Atomic Absorption and Polarography. EPA-600/7-77-036. 200

Howe, L. H. Determination of Zinc, Cadmium, Lead, and Copper in Water by Anodic Stripping Voltammetry. EPA-600/7-78-075. 190

Howe, L. H. Critical Evaluation of Differential Pulse Polarography for Determining Chromium(III) and Chromium(VI) In Water Samples. EPA-600/7-79-086. 187

Hu, M. C. Wet/Dry Cooling Systems for Fossil-Fueled Power Plants: Water Conservation and Plume Abatement. EPA-600/7-77-137. 79

Hu, M. C. Water Consumption and Costs for Various Steam Electric Power Plant Cooling Systems. EPA-600/7-78-157. 89

Hudson, J. L. Kinetics of Sulfur Dioxide Oxidation in Aqueous Solution. EPA-600/7-79-030. 56

Hull, L. Analysis of Meteorological Conditions During the 1977 Anclote Keys-Plume Study. EPA-600/7-78-117. 210

Hunter, S. C. Field Testing: Application of Combustion Modifications to Control Pollutant Emissions from Industrial Boilers--Phases I and II (Data Supplement). EPA-600/2-77-122. 139

Pg. No.

Interess, E. Evaluation of the General Motors' Double Alkali SO_2 Control System. EPA-600/7-77-005. 140

Janssen, J. E. Study of a Thermal Aerosol Oil Burner. EPA-600/7-77-108. 105

Jassby, A. Production Cycles in Aquatic Microcosms. EPA-600/7-77-097. 222

Johnson, J. W. A Computer-Based Cascade Impactor Data Reduction System. EPA-600/7-78-042. 157

Johnson, P. L. Environmental Effects of Energy-Abstracts of Selected Projects Supported by EPA Funds. EPA-600/7-77-048. 221

Jones, D. C. Monitoring Environmental Impacts of the Coal and Oil Shale Industries, Research and Development Needs. EPA-600/7-77-015. 52

Jones, H. C. Experimental Air Exclusion System for Field Studies of SO_2 Effects on Crop Productivity. EPA-600/7-77-122. 212

Jonke, A. Supportive Studies in Fluidized-Bed Combustion. EPA-600/7-77-138. 16

Kalvaitis, A. N. The Vertical Planar Motion Mechanism; A Dynamic Test Apparatus for Evaluating Current Meters and Other Marine Instrumentation. EPA-600/7-78-145. 197

Kanipe, L. G. Handbook for Analytical Quality Control in Radioanalytical Laboratories. EPA-600/7-77-088. 203

Kanipe, L. G. Least-Squares Analysis of Gamma-Ray Spectra In Environmental Samples. EPA-600/7-77-089. 203

Kang, C. C. Catalyst Evaluation for Denitrogenation of Petroleum Residua and Coal Liquids. EPA-600/7-78-159. 76

Kelly, J. M. Camp Branch and Camp Cross Experimental Watershed Projects: Objectives, Facilities, and Ecological Characteristics. EPA-600/7-79-053. 218

Kelly, W. Evaluation of the Environmental Effects of Western Surface Coal Mining Volume II - Mine Inventory. EPA-600/7-79-034. 42

Kemp, V. E. Inventory of Combustion-Related Emissions from Stationary Sources (Second Update). EPA-600/7-78-100. 135

Kenkeremath, D. C. A Program for the Environmental Assessment of Conventional Combustion Processes. EPA-600/7-78-140. 137

Kennedy, R. A. EPA and ERDA High-Temperature/High-Pressure Particulate Control Programs. EPA-600/7-77-013. 171

Pg. No.

Kesselring, J. P. Catalytic Oxidation of Fuels for NO_x Control from Area Sources. EPA-600/2-76-037. 144

Ketels, P. A. Survey of Emissions Control and Combustion Equipment Data In Industrial Process Heating. EPA-600/7-76-022. 106

Klett, M. G. Typical Costs for Electric Energy Generation and Environmental Controls. EPA-600/7-79-026. 84

King. J. Second Symposium on Fugitive Emissions: Measurement and Control. EPA-600/7-77-148. 178

Kircher, J. F. Survey of Sulfate, Nitrate, and Acid Aerosol Emissions and Their Control. EPA-600/7-77-041. 172

Kline, J. M. Catalytic Reduction of Nitrogen Oxides with Ammonia: Utility Pilot Plant Operation. EPA-600/7-76-031. 147

Koch, R. C. Power Plant Stack Plumes in Complex Terrain, An Appraisal of Current Research. EPA-600/7-77-020. 210

Koch, R. C. Power Plant Stack Plumes in Complex Terrain, Data Collected During an Aerometric Field Study. EPA-600/7-79-010b. 208

Koester, P. A. Analysis for Radionuclides in SRC and Coal Combustion Samples. EPA-600/7-78-185. 32

Koehler, G. Magnesia Scrubbing Applied to a Coal-Fired Power Plant. EPA-600/7-77-018. 122

Koralek, C. S. Environmental Assessment Data Base for Coal Liquefaction Technology: Volume I. Systems for 14 Liquefaction Processes. EPA-600/7-78-184a. 31

Koscianowski, J. R. Tests of Fabric Filtration Materials. EPA-600/7-78-056. 157

Ksocianowski, J. R. Filtration Parameters for Dust Cleaning Fabrics. EPA-600/7-79-031. 151

Koscianowski, J. R. Test of Fabric Filtration Materials. EPA-600/7-79-087. 154

Koutsoukos, E. P. Meyers Process Development for Chemical Desulfurization of Coal, Volume I. EPA-600/2-76-143a. 128

Koutsoukos, E. P. Meyers Process Development for Chemical Desulfurization of Coal, Volume II--Appendices. EPA-600/2-76-143b. 128

Krause, H. H. Combustion Additives for Pollution Control-A State-of-the-Art Review. EPA-600/2-77-008a. 91

Pg. No.

Krisko, W. J. Particulate Control with Cleanable Cartridge Filters Using Double-Layer Media. EPA-600/7-77-140. 177

Lacey, G. E. Compact, In-Stack, Three Size Cut Particle Classifier. EPA-600/7-77-033. 172

LaMantia, C. R. Final Report: Dual Alkali Test and Evaluation Program; Volume I. Executive Summary. EPA-600/7-77-050a. 123

LaMantia, C. R. Final Report: Dual Alkali Test and Evaluation Program; Volume II. Laboratory and Pilot Plant Programs. EPA-600/7-77-050b. 123

LaMantia, C. R. Final Report: Dual Alkali Test and Evaluation Program; Volume III. Prototype Test Program-Plant Scholtz. EPA-600/7-77-050c. 124

Laseke, B. A., Jr. Survey of Flue Gas Desulfurization Systems: Cholla Station, Arizona Public Service Co. EPA-600/7-78-048a. 115

Laseke, B. A., Jr. Survey of Flue Gas Desulfurization System: Will County Station, Commonwealth Edison Co. EPA-600/7-78-048b. 115

Laseke, B. A., Jr. Survey of Flue Gas Desulfurization Systems: St. Clair Station, Detroit Edison Company. EPA-600/7-78-048c. 116

Laseke, B. A., Jr. Survey of Flue Gas Desulfurization Systems: La Cygne Station, Kansas City Power and Light Co. EPA-600/7-78-048d. 116

Laseke, B. A., Jr. Survey of Flue Gas Desulfurization Systems: Green River Station, Kentucky Utilities. EPA-600/7-78-048e. 116

Laseke, B. A., Jr. EPA Utility FGD Survey: December 1977 - January 1978. EPA-600/7-78-051a. 117

Lakeke, B. EPA Utility FGD Survey: April-May 1978. EPA-600/7-78-051c. 117

Lawless, P. A. Analysis of Cascade Impactor Data for Calculating Particle Penetration. EPA-600/7-78-189. 165

Lawless, P. A. Characterization of the EPA/IERL-RTP Pilot-Scale Precipitator. EPA-600/7-79-052. 153

Leavitt, C. Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume I. Executive Summary. EPA-600/7-78-164a. 89

Leavitt, C. Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume II. Comparative Assessment. EPA-600/7-78-164b. 90

Pg. No.

Leavitt, C. Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume III. Comprehensive Assessment and Appendices. EPA-600/7-78-164c. 90

Lee, H. Potential Radioactive Pollutants Resulting from Expanded Energy Programs. EPA-600/7-77-082. 203

Leith, D. Filter Cake Redeposition in a Pulse-Jet Filter. EPA-600/7-77-022. 171

Leith, D. Performance of a High Velocity Pulse-Jet Filter. EPA-600/7-78-131. 195

Leivo, C. C. Flue Gas Desulfurization Systems: Design and Operating Considerations Volume I. Executive Summary. EPA-600/7-78-030a. 111

Leivo, C. C. Flue Gas Desulfurization Systems: Design and Operating Considerations Volume II. Technical Report. EPA-600/7-78-030b. 112

Leo, P. P. Control of Waste and Water Pollution From Power Plant Flue Gas Cleaning Systems: First Annual R and D Report. EPA-600/7-76-018. 80

Leo, P. P. Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Solid Waste Impact (Volume I. Executive Summary). EPA-600/7-78-044a. 114

Leo, P. P. Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Solid Waste Impact (Volume II. Technical Discussion). EPA-600/7-78-044b. 114

Levins, P. L. Measurement of PCB Emissions from Combustion Sources. EPA-600/7-79-047. 152

Levy, J. M. Combustion Research on the Fate of Fuel-Nitrogen Under Conditions of Pulverized Coal Combustion. EPA-600/7-78-165. 137

Libicki, J. Effects of the Disposal of Coal Waste and Ashes in Open Pits. EPA-600/7-78-067. 47

Lichte, H. W. Performance Testing of Three Offshore Skimming Devices. EPA-600/7-78-082. 48

Liggett, W. The Analysis of Suspended Particulates and Sulfates: A Way to Begin. EPA-600/7-79-084. 209

Lilienfeld, P. Development and Fabrication of a Prototype Fibrous Aerosol Monitor (FAM). EPA-600/7-77-147. 205

Lowell, P. S. Feasibility of Producing Elemental Sulfur from Magnesium Sulfite. EPA-600/7-76-030. 129

Pg. No.

Lowell, P. S. Precipitation Chemistry of Magnesium Sulfite Hydrates in Magnesium Oxide Scrubbing. EPA-600/7-77-109. 126

Lunsford, J. H. Surface Reactions of Oxides of Sulfur. EPA-600/7-79-088. 209

Lunt, R. R. An Evaluation of the Disposal of Flue Gas Desulfurization Wastes in Mines and the Ocean: Initial Assessment. EPA-600/7-77-051. 77

Lyon, D. First Trials of CAFB Pilot Plant on Coal. EPA-600/7-77-027. 14

MacLeod, W. D., Jr. Petroleum Hydrocarbon Baseline Investigation for Northern Puget Sound and the Strait of Juan de Fuca. EPA-600/7-77-098. 223

Magee, E. M. Evaluation of Pollution Control in Fossil Fuel Conversion Processes: Final Report. EPA-600/2-76-101. 97

Maiero, D. J. Protection, Cleanup, and Restoration of Salt Marshes Endangered by Oil Spills--A Procedural Manual. EPA-600/7-78-220. 52

Malcolm, J. W. Use of Solar Energy to Heat Anaerobic Digesters; Part I - Technical and Economic Feasibility Study; Part II - Economic Feasibility Throughout the United States. EPA-600/2-78-114. 100

Maloney, K. L. Low-Sulfur Western Coal Use in Existing Small and Intermediate Size Boilers. EPA-600/7-78-153a. 89

Manshilin, V. V. Demetallization Catalyst Tests on Heavy Residual Oils. EPA-600/7-78-119. 75

Mason, H. B. Preliminary Environmental Assessment of Combustion Modification Techniques: Volume I. Summary. EPA-600/7-77-119a. 142

Mason, H. B. Preliminary Environmental Assessment of Combustion Modification Techniques: Volume II. Technical Results. EPA-600/7-77-119b. 143

Masters, W. Sampling System Evaluation for High-Temperature, High-Pressure Processes. EPA-600/7-78-158. 163

McCain, J. D. Evaluations of Novel Particulate Control Devices. EPA-600/7-78-093. 191

McCain, J. D. CEA Variable-Throat Venturi Scrubber Evaluation. EPA-600-7-78-094. 192

McCain, J. D. A Data Reduction System for Cascade Impactors. EPA-600/7-78-132a. 195.

McCandless, L. E. Assessment of Coal Cleaning Technology: First Report. EPA-600/7-78-150. 24

Pg. No.

McCandless, F. P. Reduction of Nitric Oxide with Metal Sulfides. EPA-600/7-78-213. 138

McDonald, J. R. A Mathematical Model of Electrostatic Precipitation (Revision 1): Volume I. Modeling and Programming. EPA-600/7-78-111a. 160

McDonald, J. R. A Mathematical Model of Electrostatic Precipitation (Revision 1): Volume II. User Manual. EPA-600/7-78-111b. 160

McDonald, J. R. A Mathematical Model of Electrostatic Precipitation: Computer Program. EPA-600/7-78-111c. 160

McKenna, J. D. Applying Fabric Filtration to Refuse-Fired Boilers: A Pilot-Scale Investigation. EPA-600/7-78-078. 101

McKown, M. M. Investigation of Matrix Interferences for AAS Trace Metal Analyses of Sediments. EPA-600/7-78-085. 191

McIlvaine, R. W. Research and Development and Cost Projections for Air Pollution Control Equipment. EPA-600/7-78-092. 158

Melia, M. EPA Utility FGD Survey: June-July 1978. EPA-600/7-78-051d. 118

Melia, M. EPA Utility FGD Survey: October-November 1978. EPA-600/7-79-022b. 56

Merryman, E. L. NO_x Formation in CO Flames. EPA-600/2-77-008c. 138

Merryman, E. L. Method for Analyzing Emissions from Atmospheric Fluidized-Bed Combustor. EPA-600/7-77-034. 15

Meyer, J. W. Energy Supply, Demand/Need, and the Gaps Between; Volume I--An Overview. EPA-600/2-76-044a. 66

Meyer, J. W. Energy Supply, Demand/Need, and the Gaps Between; Volume II--Monographs and Working Papers. EPA-600/2-76-044b. 66

Mezey, E. J. Fuel Contaminants: Volume 3. Control of Coal-Related Pollutants. EPA-600/7-79-025a. 20

Mezey, E. J. Fuel Contaminants: Volume 4. Application of Oil Agglomeration to Coal Wastes. EPA-600/7-79-025b. 20

Miller, B. Nonwoven Fabric Filters for Particulate Removal in Respirable Dust Range. EPA-600/7-77-115. 176

Miller, B. Studies of Dust Cake Formation and Structure in Fabric Filtration. EPA-600/7-78-095. 159

Miorin, A. F. Catawissa Creek Mine Drainage Abatement Project. EPA-600/7-77-124. 55

Pg. No.

Miorin, A. F. Tioga River Mine Drainage Abatement Project. EPA-600/7-79-035. 42

Morehouse, T. A. A Case Study of the Fish and Wildlife Aspects of the Pre-Permit and Construction of the Trans-Alaska Oil Pipeline. EPA-600/7-78-127. 220

Murphy, B. Energy Consumption of Environmental Controls: Fossil Fuel, Steam Electric Generating Industry. EPA-600/7-77-101. 65

Ness, H. M. Flue Gas Desulfurization Using Fly Ash Alkali Derived from Western Coals. EPA-600/7-77-075. 124

New, R. Underway Water Sampling Systems-An Applications Study. EPA-600/7-77-121. 204

Newby, R. A. Alternatives to Calcium-Based SO$_2$ Sorbents for Fluidized-Bed Combustion: Conceptual Evaluation. EPA-600/7-78-005. 11

Newby, R. A. Regeneration of Calcium-Based SO$_2$ Sorbents for Fluidized-Bed Combustion: Engineering Evaluation. EPA-600/7-78-039. 11

Newby, R. A. Effect of SO$_2$ Emission Requirements on Fluidized-Bed Combustion Systems: Preliminary Technical/Economic Assessment. EPA-600/7-78-163. 121

Nichols, G. B. Conference on Particulate Collection Problems in Converting to Low Sulfur Coals. EPA-600/7-76-016. 180

Nichols, G. B. Preliminary Design and Initial Testing of a Mobile Electrostatic Precipitator. EPA-600/7-78-096. 159

Nichols, G. B. Electrostatic Precipitator Technology Assessment: Visits in Japan, November 1977. EPA-600/7-78-110. 159

Nichols, G. B. Rapping Reentrainment in a Near Full Scale Pilot Electrostatic Precipitator. EPA-600/7-78-112. 161

Nichols, G. B. Evaluation of Electrostatic Precipitator During SRC Combustion Tests. EPA-600/7-78-129. 162

Nix, D. W. Application of Germanium Detectors to Environmental Monitoring. EPA-600/7-79-054. 185

Nobe, K. Parametric Studies of Catalysts for NO$_x$ Control from Stationary Power Plants. EPA-600/7-76-026. 147

Noblett, J. G. Water Recycle/Reuse Alternatives in Coal-Fired Steam-Electric Power Plants: Volume I. Plant Studies and General Implementation Plans. EPA-600/7-78-055a. 72

Pg. No.

Noblett, J. G. Water Recycle/Reuse Alternatives in Coal-Fired Steam-Electric Power Plants: Volume II. Appendixes. EPA-600/7-78-055b. 73

Nuber, J. A. A Review of Regional-Scale Air Quality Models for Long Distance Dispersion Modeling in the Four Corners Region. EPA-600/7-78-066. 210

Nunenkamp, D. C. Coal Preparation Environmental Engineering Manual. EPA-600/2-76-138. 26

Oberholtzer, J. E. Laboratory Study of Limestone Regeneration in Dual Alkali Systems. EPA-600/7-77-074. 124

Ogren, J. A. Pollutant Measurements in Plumes from Power Plants and Cities, Summer 1975, February 1976, and February 1977, A Project MISTT Report. EPA-600/7-78-041. 209

Okuda, A. S. Design Optimization and Field Verification of an Integrated Residential Furnace--Phase I. EPA-600/7-79-037a. 132

O'Neill, E. P. Sorbent Selection for the CAFB Residual Oil Gasification Demonstration Plant. EPA-600/7-77-029. 14

Page, G. C. Guidelines for Preparing Environmental Test Plans for Coal Gasification Plants. EPA-600/7-78-134. 30

Parker, C. D. An Evaluation of Personal Sampling Pumps in Sub-Zero Temperatures. EPA-600/7-77-145. 205

Parker, C. L. Environmental Assessment Data Base for Coal Liquefaction Technology: Volume II. Synthoil, H-Coal, and Exxon Donor Solvent Processes. EPA-600/7-78-184b. 31

Parker, R. Second EPA Fine Particle Scrubber Symposium. EPA-600/2-77-193. 168

Parker, R. High-Temperature and High-Pressure Particulate Control Requirements. EPA-600/7-77-071. 174

Patel, V. P. Effects of Alternative New Source Performance Standards on Flue Gas Desulfurization System Supply and Demand. EPA-600/7-78-033. 113

Patterson, R. G. Effects of Charged Particles on Cascade Impactor Calibrations. EPA-600/7-78-195. 165

Pearson, M. J. Western Energy Sulfate/Nitrate Monitoring Network Progress Report. EPA-600/7-79-074. 187

Pellizzari, E. D. The Measurement of Carcinogenic Vapors in Ambient Atmospheres. EPA-600/7-77-055. 215

	Pg. No.
Pellizzari, E. D. Identification of Components of Energy-Related Wastes and Effluents. EPA-600/7-78-004.	72
Pellizzari, E. D. Measurement of Carcinogenic Vapors in Ambient Atmospheres, Final Report. EPA-600/7-78-062.	214
Penny, M. Development Status and Environmental Hazards of Several Advanced Energy Systems. EPA-600/7-77-062.	103
Peters, E. T. Evaluation of Stationary Source Particulate Measurement Methods, Volume II Oil-Fired Steam Generators. EPA-600/2-77-026.	199
Phillips, J. L. Development of a Mathematical Basis for Relating Sludge Properties to FGD-Scrubber Operating Variables. EPA-600/7-78-072.	74
Phillips, N. P. In-Situ Coal Gasification: Status of Technology and Environmental Impact. EPA-600/7-77-045.	35
Piispanen, W. Electrified Bed Evaluation. EPA-600/7-78-178.	164
Picklesimer, E. A. Heat Pumps: Substitutes for Outmoded Fossil-Fueled Systems. EPA-600/7-77-035.	63
Pilat, M. J. University of Washington Electrostatic Scrubber Tests at a Steel Plant. EPA-600/7-78-177a.	164
Pizzo, J. T. Washington State Refineries: Petroleum Derivatives and Wastewater Effluent Characteristics. EPA-600/7-78-040.	218
Poe, G. G. Evaluation of Ceramic Filters for High-Temperature/High-Pressure Fine Particulate Control. EPA-600/2-77-056.	166
Poe, G. G. Evaluation of Molten Scrubbing for Fine Particulate Control. EPA-600/2-77-067.	166
Pontius, D. H. Fine Particle Charging Development. EPA-600/2-77-173.	168
Ragland, J. W. HP-25 Programmable Pocket Calculator Applied to Air Pollution Measurement Studies: Stationary Sources. EPA-600/7-77-058.	201
Ramani, R. V. USER's Manual for Premining Planning of Eastern Surface Coal Mining, Volume 1: Executive Summary. EPA-600/7-78-180.	51
Ramsdeu, A. W. Chemically Active Fluid-Bed Process for Sulphur Removal During Gasification of Heavy Fuel Oil--Fourth Phase. EPA-600/7-79-066.	10
Ramsey, G. H. Evaluation of Foam Scrubbing as a Method for Collecting Fine Particulate. EPA-600/2-77-197.	169
Randall, A. Estimating Environmental Damages from Surface Mining of Coal in Appalachia: A Case Study. EPA-600/2-78-003.	42

Pg. No.

Rasmussen, R. A. Hydrocarbon and Oxidant Chemistry Observed at a Site Near St. Louis. EPA-600/7-77-056. 211

Ray, S. S. A State-of-the-Art Report on Intake Technologies. EPA-600/7-76-020. 81

Ray, S. S. Characterization of Ash from Coal-Fired Power Plants. EPA-600/7-77-010. 170

Reed, A. K. Assessment of Environmental Aspects of Uranium Mining and Milling. EPA-600/7-76-036. 53

Reese, J. T. Utility Boiler Design/Cost Comparison: Fluidized-Bed Combustion vs. Flue Gas Desulfurization. EPA-600/7-77-126. 16

Reisman, E. Multiwavelength Transmissometer for Measuring Mass Concentration of Particulate Emissions. EPA-600/2-79-022. 184

Robson, F. L. Fuel Gas Environmental Impact. EPA-600/2-76-153. 97

Robson, F. L. Fuel Gas Environmental Impact: Final Report. EPA-600/7-78-088. 30

Rogoshewski, P. J. Standards of Practice Manual for the Solvent Refined Coal Liquefaction Process. EPA-600/7-78-091. 30

Rollins, R. Evaluation of a Sulfur Dioxide Mass Emission Rate Monitoring System. EPA-600/2-78-007. 188

Rossoff, J. Disposal of By-Products From Nonregenerable Flue Gas Desulfurization Systems: Second Progress Report. EPA-600/7-77-052. 77

Rossoff, J. Disposal of By-Products from Nonregenerable Flue Gas Desulfurization Systems: Final Report. EPA-600/7-79-046. 110

Rosenman, T. Optimization of Design Specifications for Large Dry Cooling Systems. EPA-600/7-78-152. 75

Rusek, S. J. Source Assessment: Open Mining of Coal State of the Art. EPA-600/2-78-004x. 45

Ryan, L. E. Approach to Level 2 Analysis Based on Level 1 Results, MEG Categories and Compounds, and Decision Criteria. EPA-600/7-79-063a. 86

Ryan, L. E. Level 2 Chemical Analysis of Fluidized-Bed Combustor Samples. EPA-600/7-79-063b. 10

Salvesen, K. G. Emission Characterization of Stationary NO_x Sources: Volume I. Results. EPA-600/7-78-120a. 135

Salvesen, K. G. Emission Characterization of Stationary NO_x Sources: Volume II. Data Supplement. EPA-600/7-78-120b. 136

	Pg. No.
Sanyal, S. Proceedings of the Second Workshop on Sampling Geothermal Effluents. EPA-600/7-78-121.	102
Saraf, D. Continuous Reading Lidar Technique for Measuring Plume Opacity. EPA-600/2-79-023.	184
Schalit, L. M. SAM/IA: A Rapid Screening Method for Environmental Assessment of Fossil Energy Process Effluents. EPA-600/7-78-015.	86
Schrag, M. P. Fine Particle Emissions Information System User Guide. EPA-600/2-76-172.	178
Schrag, M. P. Fine Particle Emissions Information System Reference Manual. EPA-600/2-76-173.	179
Schrag, M. P. Fine Particle Emissions Information System: Summary Report (Summer 1976). EPA-600/2-76-174.	179
Schrag, M. P. Fine Particle Emissions Information System User Workshop. EPA-600/7-77-001.	170
Schreiber, R. J. Feasibility of a Direct Contact Heat and Emission Loss Prevention System for Area Source Furnaces. EPA-600/2-76-121.	146
Schrier, E. Cleanup Efficiency and Biological Effects of a Fuel Oil Spill in Cold Weather: The 1977 *Bouchard No. 65* Oil Spill in Buzzards Bay, Massachusetts. EPA-600/7-78-133.	49
Sears, D. R. Environmental Impact Statement for a Hypothetical 1000 MW_e Photovoltaic Solar-Electric Plant. EPA-600/7-77-085.	104
Sears, D. R. Preliminary Environmental Assessment of Solar Energy Systems. EPA-600/7-77-086.	104
Sephton, H. H. Renovation of Power Plant Cooling Tower Blowdown for Recycle by Evaporation: Crystallization with Interface Enhancement. EPA-600/7-77-063.	78
Serth, R. W. Energy Requirements of Present Pollution Control Technology. EPA-600/7-78-084.	87
Shaw, S. H. Development of a Sorbent Distribution and Recovery System. EPA-600/7-78-217.	198
Shih, C. C. Emissions Assessment of Conventional Stationary Combustion Systems: Volume II. Internal Combustion Sources. EPA-600/7-79-029c.	150
Shilling, C. W. National Plan for the Safety and Health of Divers in Their Quest for Subsea Energy. EPA-600/7-77-028.	215
Shoffstall, D. R. Burner Design Criteria for Control of NO_x from Natural Gas Combustion; Volume I. Data Analysis and Summary of Conclusions. EPA-600/2-76-098a.	145

Pg. No.

Shoffstall, D. R. Burner Design Criteria for Control of NO_x from Natural Gas Combustion; Volume II. Raw Data and Experimental Results. EPA-600/2-76-098b. 146

Shoffstall, D. R. Burner Deisgn Criteria for NO_x Control from Low-Btu Gas Combustion; Volume I. Ambient Fuel Temperature. EPA-600/7-77-094a. 141

Shoffstall, D. R. Burner Design Criteria for NO_x Control from Low-Btu Gas Combustion; Volume II. Elevated Fuel Temperature. EPA-600/7-77-094b. 141

Shorts, R. Q. Site Selection and Design for Minimizing Pollution from Underground Coal Mining Operations. EPA-600/7-78-006. 46

Shumate, K. S. Resources Allocation to Optimize Mining Pollution Control. EPA-600/2-76-112. 223

Sickles, II, J. E. Literature Survey of Emissions Association with Emerging Energy Technologies. EPA-600/7-77-104. 175

Sickles, II, J. E. Atmospheric Chemistry of Potential Emissions From Fuel Conversion Facilities, A Smog Chamber Study. EPA-600/7-78-029. 189

Sickles, II, J. E. Nitrogen Dioxide Photolytic, Radiometric, and Meteorological Field Data. EPA-600/7-78-053. 134

Singer, P. C. Assessment of Coal Conversion Wastewaters: Characterization and Preliminary Biotreatability. EPA-600/7-78-181. 220

Sinor, J. W. Evaluation of Background Data Relating to New Source Performance Standards for Lurgi Gasification. EPA-600/7-77-057. 36

Slawson, G. C. Compendium Reports on Oil Shale Technology. EPA-600/7-79-039. 184

Smith, E. M. Sensitized Fluorescence for the Detection of Polycyclic Aromatic Hydrocarbons. EPA-600/7-78-182. 197

Smith, G. F. Performance Testing of Selected Sorbent Booms. EPA-600/7-78-219. 51

Smith, J. H. Environmental Pathways of Selected Pollutants in Freshwater Systems Part I: Background and Experimental Procedures. EPA-600/7-77-113. 212

Smith, J. H. Environmental Pathways of Selected Chemicals In Freshwater Systems Part II: Laboratory Studies. EPA-600/7-78-074. 219

Smith, W. B. Procedures Manual for Electrostatic Precipitator Evaluation. EPA-600/7-77-059. 173

Pg. No.

Smith, W. B. Development and Laboratory Evaluation of a Five-Stage Cyclone System. EPA-600/7-78-008. 188

Smith, W. B. Technical Manual: A Survey of Equipment and Methods for Particulate Sampling in Industrial Process Streams. EPA-600/7-78-043. 157

Smith, W. B. Advances in Particle Sampling and Measurement (Asheville, NC, May 1978). EPA-600/7-79-065. 153

Spaite, P. W. Low- and Medium-Btu Gasification Systems: Technology Overview. EPA-600/7-78-061. 29

Sparks, L. E. SR-52 Programmable Calculator Programs for Venturi Scrubbers and Electrostatic Precipitators. EPA-600/7-78-026. 156

Sparks, L. E. Particle Collection by a Venturi Scrubber Downstream from an Electrostatic Precipitator. EPA-600/7-78-193. 165

Sproston, T. Nuclear Power Plant Waste Heat Horticulture. EPA-600/7-79-091. 71

Stambaugh, E. P. Combustion of Hydrothermally Treated Coals. EPA-600/7-78-068. 23

Stern, R. D. Symposium on Flue Gas Desulfurization--New Orleans, March 1976; Volume I. EPA-600/2-76-136a. 127

Stern, R. D. Symposium on Flue Gas Desulfurization--New Orleans, March 1976; Volume II. EPA-600/2-76-136b. 127

Stone, R. Environmental Assessment of Solid Residues From Fluidized-Bed Fuel Processing. EPA-600/7-77-139. 79

Stone, R. Environmental Assessment of Solid Residues from Fluidized-Bed Fuel Processing: Final Report. EPA-600/7-78-107. 88

Stukel, J. J. A Region's Energy Future: The ORBES Experience. EPA-600/7-77-120. 65

Sugarek, R. L. Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Water Pollution Impact (Volume I. Executive Summary). EPA-600/7-78-045a. 114

Sugarek, R. L. Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Water Pollution Impact (Volume II. Technical Discussion). EPA-600/7-78-045b. 115

Summerer, D. Magnesia FGD Process Testing on a Coal-Fired Power Plant. EPA-600/2-77-165. 122

Sun, C. C. Disposal of Solid Residue From Fluidized-Bed Combustion: Engineering and Laboratory Studies. EPA-600/7-78-049. 72

Pg. No.

Surprenant, N. Preliminary Emissions Assessment of Conventional Stationary Combustion Systems; Volume I--Executive Summary. EPA-600/2-76-046a. 95

Surprenant, N. Preliminary Emissions Assessment of Conventional Stationary Combustion Systems; Volume II--Final Report. EPA-600/2-76-046b. 96

Surprenant, N. Preliminary Emissions Assessment of Conventional Stationary Combustion Systems; Volume III, Update (12/75-6/76). EPA-600/2-76-046c. 96

Suprenant, N. Third Symposium on Fabric Filters for Particulate Collection. EPA-600/7-78-087. 158

Szabo, M. F. Operation and Maintenance of Particulate Control Devices on Coal-Fired Utility Boilers. EPA-600/2-77-129. 167

Szabo, M. F. Environmental Assessment of Coal Transportation. EPA-600/7-78-081. 87

Taliaferro, R. C. Testing Program for Mining Coal in an Oxygen Free Atmosphere - Volume 1. EPA-600/7-78-080a. 48

Taliaferro, R. C. Testing Program for Mining Coal in an Oxygen Free Atmosphere - Volume II - Appendices. EPA-600/7-78-080b. 48

Tanner, C. E. Guide to Preselection of Training Samples and Ground Truth Collection. EPA-600/7-77-100. 204

Tanner, C. E. Computer Processing Results of Scanner Data Over Selected Coal Strip Mines. EPA-600/7-79-080. 187

Tems, R. D. EPA-Interagency Coal Cleaning Program: FY 1978 Progress Report. EPA-600/7-79-072. 21

Tennessen, K. J. Effects of Thermal Discharge on Aquatic Insects in the Tennessee Valley. EPA-600/7-78-128. 75

Terry, S. C. A Feasibility Study of a Pocket-Sized Gas Chromatographic Air Analyzer. EPA-600/7-77-146. 205

Thompson, W. E. Survey of Projects Concerning Conventional Combustion Environmental Assessments. EPA-600/7-78-139. 136

Tolle, D. A. Environmental Assessment of Coal Cleaning Processes: Master Test Plan. EPA-600/7-79-073a. 21

Truett, J. B. Gasification/Combined-Cycle System for Electric Power Generation. EPA-600/2-76-085. 38

Pg. No.

Truett, J. B. Conventional Combustion Environmental Assessment Program: First Annual Report. EPA-600/7-78-138. 136

Turner, J. H. EPA Research in Fabric Filtration: Annual Report on IERL-RTP Inhouse Program. EPA-600/7-77-042. 173

Turner, P. P. Advanced Oil Processing/Utilization Environmental Engineering: EPA Program Status Report. EPA-600/7-78-077. 12

Tuttle, J. EPA Industrial Boiler FGD Survey: First Quarter 1978. EPA-600/7-78-052a. 118

Tuttle, J. EPA Industrial Boiler FGD Survey: Second Quarter 1978. EPA-600/7-78-052b. 118

Tuttle, J. EPA Industrial Boiler FGD Survey: Third Quarter 1978. EPA-600/7-78-052c. 118

Tyndall, M. F. Process Technology Background for Environmental Assessment/Systems Analysis Utilizing Residual Fuel Oil. EPA-600/7-77-081. 94

Tyndall, M. F. Environmental Assessment for Residual Oil Utilization-Second Annual Report. EPA-600/7-78-175. 91

Tyson, T. J. Low NO_x Combustion Concepts for Advanced Power Generation Systems Firing Low-Btu Gas. EPA-600/2-77-235. 140

Ung, C. Y. Comparative Assessment of Trace Metals from Coal- Versus Oil-Firing in a Controlled Industrial Boiler. EPA-600/7-79-042. 151

VanNess, R. P. Project Manual for Full-Scale Dual-Alkali Demonstration at Louisville Gas and Electric Co.--Preliminary Design and Cost Estimate. EPA-600/7-78-010. 110

VanNess, R. P. Executive Summary for Full-Scale Dual-Alkali Demonstration at Louisville Gas and Electric Co.--Preliminary Design and Cost Estimate. EPA-600/7-78-010a. 110

Van Nice, L. J. Pilot Plant Design for Chemical Desulfurization of Coal. EPA-600/2-77-080. 24

Van Osdell, D. Seminar on In-Stack Particle Sizing for Particulate Control Device Evaluation. EPA-600/2-77-060. 166

Varga, G. M. Applicability of the Thermal DeNOx Process to Coal-Fired Utility Boilers. EPA-600/7-79-079. 133

Venditti, F. P. Symposium on the Transfer and Utilization of Particulate Control Technology: Vol. 3. Scrubbers, Advanced Technology, and HTP Applications. EPA-600/7-79-044c. 152

Pg. No.

Venditti, F. P. Symposium on the Transfer and Utilization of Particulate Control Technology: Vol. 4. Fugitive Dusts and Sampling, Analysis and Characterization of Aerosols. EPA-600/7-79-044d. 152

Wachter, R. A. Source Assessment: Water Pollutants From Coal Storage Areas. EPA-600/2-78-004m. 44

Wahler, W. A. Pollution Control Guidelines for Coal Refuse Piles and Slurry Ponds. EPA-600/7-78-222. 52

Wallace, D. A. Alarm-Level Monitor for SO_2 Emissions from Stationary Sources. EPA-600/2-77-021. 198

Waibel, R. T. Pollutant Emissions from "Dirty" Low- and Medium-Btu Gases. EPA-600/7-78-191. 137

Ward, G. K. The Evaluation of Fluoride Ion-Selective Electrodes in Freshwater and Seawater. EPA-600/7-79-056. 185

Ward, G. K. Test and Evaluation of Potassium Sensors in Fresh and Salt Water. EPA-600/7-79-057. 185

Ward, G. K. Evaluation of Calcium Sensors in Fresh and Salt Water. EPA-600/7-79-058. 186

Ward, G. K. Evaluation of the Orion Divalent Specific Ion Electrode. EPA-600/7-79-059. 186

Ward, G. K. Evaluation of Sodium Ion Electrodes in Freshwater and Seawater. EPA-600/7-79-061. 186

Ward, R. C. Evaluating the Sampling Frequencies of Water Quality Monitoring Networks. EPA-600/7-78-169. 197

Ware, S. A. Fuel and Energy Production by Bioconversion of Waste Materials - State-of-the-Art. EPA-600/2-76-148. 106

Warren, J. L. Status of IERL-RTP Environmental Assessment Methodologies for Fossil Energy Processes. EPA-600/7-78-151. 88

Waterland, L. R. Environmental Assessment of Stationary Source NO_x Control Technologies: First Annual Report. EPA-600/7-78-046. 134

Weant, III, G. E. Particulate Control for Fugitive Dust. EPA-600/7-78-071. 158

Weaver, D. E. Data Base for Standards/Regulations Development for Land Disposal of Flue Gas Cleaning Sludges. EPA-600/7-77-118. 78

Weimer, L. D. Effective Control of Secondary Water Pollution from Flue Gas Desulfurization Systems. EPA-600/7-77-106. 125

Pg. No.

Wells, R. M. Electrical Energy as an Alternate to Clean Fuels for Stationary Sources; Volume I. EPA-600/2-76-049a. 66

Wells, R. M. Electrical Energy as an Alternate to Clean Fuels for Stationary Sources; Volume II--Appendix. EPA-600/2-76-049b. 67

Wen, C. Y. Analysis and Simulation of Recycle SO_2-Lime Slurry in TCA Scrubber System. EPA-600/7-77-026. 76

Werner, A. S. Preliminary Environmental Assessment of the CAFB. EPA-600/7-76-017. 17

Werner, A. S. Preliminary Environmental Assessment of the Lignite-Fired CAFB. EPA-600/7-79-048. 10

West, R. E. Field Investigation of Cooling Tower and Cooling Pond Plumes. EPA-600/7-78-059. 73

Westberg, H. H. Ambient Hydrocarbon and Ozone Concentrations Near a Refinery. EPA-600/7-77-049. 72

Westlake, D. W. S. Microbial Degradation of Petroleum Hydrocarbons. EPA-600/7-78-148. 49

Wewerka, E. M. Trace Element Characterization of Coal Wastes--First Annual Report. EPA-600/7-78-028. 46

Wewerka, E. M. Trace Element Characterization of Coal Wastes--Second Annual Progress Report. EPA-600/7-78-028a. 47

White, I. L. Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume I Summary. EPA-600/7-77-072a. 64

White, I. L. Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume II Detailed Analyses and Supporting Materials. EPA-600/7-77-072b. 64

White, I. L. Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume III Preliminary Policy Analysis. EPA-600/7-77-072c. 64

White, I. L. Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Appendices. EPA-600/7-77-072d. 65

White, I. L. Work Plan for Completing a Technology Assessment of Western Energy Resource Development. EPA-600/7-78-012. 63

White, I. L. Energy From the West: Energy Resource Development Systems Report - Volume I: Introduction and General Social Controls. EPA-600/7-79-060a. 60

Pg. No.

White, I. L. Energy From the West: Energy Resource Development Systems Report - Volume II: Coal. EPA-600/7-79-060b. 60

White, I. L. Energy From the West: Energy Resource Development Systems Report - Volume III: Oil Shale. EPA-600/7-79-060c. 60

White, I. L. Energy From the West: Energy Resource Development Systems Report - Volume IV: Uranium. EPA-600/7-79-060d. 61

White, I. L. Energy From the West: Energy Resource Development Systems Report - Volume V: Oil and Natural Gas. EPA-600/7-79-060e. 61

White, I. L. Energy From the West: Energy Resource Development Systems Report - Volume VI: Geothermal. EPA-600/7-79-060f. 61

White, I. L. Energy From the West: Impact Analysis Report Volume I: Introduction and Summary. EPA-600/7-79-082a. 62

White, I. L. Energy From the West: Impact Analysis Report Volume II: Site-Specific and Regional Impact Analyses. EPA-600/7-79-082b. 62

White, I. L. Energy From the West: Policy Analysis Report. EPA-600/7-79-083. 62

Williamson, P. C. Ammonia Absorption/Ammonium Bisulfate Regeneration Pilot Plant for Flue Gas Desulfurization. EPA-600/2-77-149. 121

Wilson, E. M. Engineering and Economic Analysis of Waste to Energy Systems. EPA-600/7-78-086. 74

Wilson, J. S. Environmental Assessment of Geopressured Waters and Their Project Uses. EPA-600/7-77-039. 92

Wilson, R. R. Guidelines for Particulate Sampling in Gaseous Effluents from Industrial Processes. EPA-600/7-79-028. 150

Wilson, W. E. Sulfates in the Atmosphere, A Progress Report on Project MISTT. EPA-600/7-77-021. 211

Wilson, W. E. Aerosol Research Branch, Annual Report FY1976/76A, Federal Interagency Energy/Environment Research and Development Program. EPA-600/7-77-076. 202

Winiarski, L. D. Field Investigations of Mechanical Draft Cooling Tower Plumes. EPA-600/7-77-025. 199

Woffinden, G. J. Effects of Interfacial Properties on Collection of Fine Particles by Wet Scrubbers. EPA-600/7-78-097. 192

Woffinden, G. J. Airborne Monitoring of Cooling Tower Effluents - Vol I: Technical Summary. EPA-600/7-78-079. 190

Pg. No.

Wu, F. H. Y. Mathematical Model for Multiple Cooling Tower Plumes. EPA-600/7-78-102. 74

Wyrobek, A. J. Effects of Methyl Methanesulfonate and Dimethylnitrosamine on Syrian Hamster Sperm. EPA-600/7-78-123. 214

Yu, H. H. S. Alternatives to Chlorination for Control of Condenser Tube Bio-Fouling. EPA-600/7-77-030. 221

Yung, S. C. Mobile Bed Flux Force/Condensation Scrubbers. EPA-600/7-79-071. 154

Yung, S. Venturi Scrubber Performance Model. EPA-600/2-77-172. 168

Zavitsanos, P. Coal Desulfurization Using Microwave Energy. EPA-600/7-78-089. 119

Zanders, D. L. Particulate Control Mobile Test Units: Third Year's Operation. EPA-600/7-78-098. 192

Ziegler, L. H. Quality Control for Environmental Measurements Using Gamma-Ray Spectrometry. EPA-600/7-77-144. 205

Ziegler, L. H. Intercomparison of Plutonium - 239 Measurements. EPA-600/7-78-105. 193

Zimmerman, N. Characterization and Generation of Metal Aerosols. EPA-600/7-78-013. 188

EPA Report Number Index

Pg. No.

EPA-600/2-76-013a. SO_2 Abatement for Stationary Sources in Japan. Jumpei Ando. 126

EPA-600/2-76-013b. NO_x Abatement for Stationary Sources in Japan. Jumpei Ando. 143

EPA-600/2-76-024. Reuse of Power Plant Desulfurization Waste Water. L. J. Bornstein. 80

EPA-600/2-76-037. Catalytic Oxidation of Fuels for NO_x Control from Area Sources. J.P. Kesselring. 144

EPA-600/2-76-039. Chemistry of Fuel Nitrogen Cnversion to Nitrogen Oxides in Combustion. A. E. Axworthy. 144

EPA-600/2-76-044a. Energy Supply, Demand/Need, and the Gaps Between; Volume I--An Overview. J. W. Meyer. 66

EPA-600/2-76-044b. Energy Supply, Demand/Need, and the Gaps Between; Volume II--Monographs and Working Papers. J. W. Meyer. 66

EPA-600/2-76-046a. Preliminary Emissions Assessment of Conventional Stationary Combustion Systems; Volume I--Executive Summary. Norman Surprenant. 95

EPA-600/2-76-046b. Preliminary Emissions Assessment of Conventional Stationary Combustion Systems; Volume II--Final Report. Norman Surprenant. 96

EPA-600/2-76-046c. Preliminary Emissions Assessment of Conventional Stationary Combustion Systems; Volume III, Update (12/75-6/76). Norman Surprenant. 96

EPA-600/2-76-049a. Electrical Energy as an Alternate to Clean Fuels for Stationary Sources; Volume I. R. M. Wells. 66

EPA-600/2-76-049b. Electrical Energy as an Alternate to Clean Fuels for Stationary Sources; Volume II--Appendix. R. M. Wells. 67

EPA-600/2-76-052. Impact of Clean Fuels Combustion on Primary Particulate Emissions from Stationary Sources. Not identified. 178

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Pg. No.

EPA-600/2-76-056. Comparison of Fossil and Wood Fuels. E. H. Hall. 96

EPA-600/2-76-061a. Burner Criteria for NO_x Control; Volume I. Influence of Burner Variables on NO_x in Pulverized Coal Flames. M. P. Heap. 144

EPA-600/2-76-064. Atmospheric Pollution Potential from Fossil Fuel Resource Extraction, On-Site Processing and Transportation. E.C. Cavanaugh. 55

EPA-600/2-76-070. Disposal of Flue Gas Cleaning Wastes: EPA Shawnee Field Evaluation-Initial Report. R. B. Fling. 80

EPA-600/2-76-085. Gasification/Combined-Cycle System for Electric Power Generation. J. Bruce Truett. 38

EPA-600/2-76-086a. Field Testing: Application of Combustion Modifications To Control Pollutant Emissions from Industrial Boilers--Phase II. G. A. Cato. 145

EPA-600/2-76-091. Sulfur Reduction Potential of U.S. Coals: A Revised Report of Investigations. J. A. Cavallaro. 25

EPA-600/2-76-093b. Field Test Sampling/Analytical Strategies and Implementation Cost Estimates: Coal Gasification and Flue Gas Desulfurization. J. W. Hamersma. 38

EPA-600/2-76-094. Rapid Method for Determining NO_x Emissions in Flue Gases. H. M. Barnes. 145

EPA-600/2-76-098a. Burner Design Criteria for Control of NO_x from Natural Gas Combustion; Volume I. Data Analysis and Summary of Conclusions. D. R. Shoffstall. 145

EPA-600/2-76-098b. Burner Design Criteria for Control of NO_x from Natural Gas Combustion; Volume II. Raw Data and Experimental Results. D. R Shoffstall. 146

EPA-600/2-76-101. Evalution of Pollution Control in Fossil Fuel Conversion Processes: Final Report. E. M. Magee. 97

EPA-600/2-76-112. Resources Allocation to Optimize Mining Pollution Control. Kenesaw S. Shumate. 223

EPA-600/2-76-121. Feasibility of a Direct Contact Heat and Emission Loss Prevention System for Area Source Furnaces. R. J. Schreiber. 146

EPA-600/2-76-130. Reductant Gases for Flue Gas Desulfurization Systems. D. W. Hissong. 127

EPA-600/2-76-136a. Symposium on Flue Gas Desulfurization--New Orleans, March 1976; Volume I. R. D. Stern. 127

	Pg. No.
EPA-600/2-76-136b. Symposium on Flue Gas Desulfurization--New Orleans, March 1976; Volume II. R. D. Stern.	127
EPA-600/2-76-138. Coal Preparation Environmental Engineering Manual. David C. Nunenkamp.	26
EPA-600/2-76-143a. Meyers Process Development for Chemical Desulfurization of Coal, Volume I. E. P. Koutsoukos.	128
EPA-600/2-76-143b. Meyers Process Development for Chemical Desulfurization of Coal, Volume II--Appendices. E. P. Koutsoukos.	128
EPA-600/2-76-148. Fuel and Energy Production by Bioconversion of Waste Materials - State-of-the-Art. Sylvia A. Ware.	106
EPA-600/2-76-149. Environmental Aspects of Fuel Conversion Technology, II (December 1975, Hollywood, Florida). Franklin A. Ayer.	106
EPA-600/2-76-152a. Proceedings of the Stationary Source Combustion Symposium; Volume I--Fundamental Research. Not identified.	128
EPA-600/2-76-152b. Proceedings of the Stationary Source Combustion Symposium; Volume II--Fuels and Process Research and Development. Not identified.	129
EPA-600/2-76-152c. Proceedings of the Stationary Source Combustion Symposium; Volume III--Field Testing and Surveys. Not identified.	129
EPA-600/2-76-153. Fuel Gas Environmental Impact. F. L. Robson.	97
EPA-600/2-76-171. Evaluation of Monitoring Systems for Power Plant and Sulfur Recovery Plant Emissions. Malbone W. Greene.	206
EPA-600/2-76-172. Fine Particle Emissions Information System User Guide. M. P. Schrag.	178
EPA-600/2-76-173. Fine Particle Emissions Information System Reference Manual. M. P. Schrag.	179
EPA-600/2-76-174. Fine Particle Emissions Information System: Summary Report (Summer 1976). M. P. Schrag.	179
EPA-600/2-76-176. Air, Water, and Solid Residue Prioritization Models for Conventional Combustion Sources. E. C. Eimutis.	97
EPA-600/2-76-212. Symposium on Environment and Energy Conservation (November 1975, Denver, Colorado). Franklin A. Ayer.	107
EPA-600/2-76-258. Fate of Trace and Minor Constituents of Coal During Gasification. A. Attari.	39

	Pg. No.
EPA-600/2-76-259. Initial Environmental Test Plan for Source Assessment of Coal Gasification. A. Attari.	39
EPA-600/2-77-008a. Combustion Additives for Pollution Control-A State-of-the-Art Review. H. H. Krause.	91
EPA-600/2-77-008b. Experimental Evaluation of Fuel Oil Additives for Reducing Emissions and Increasing Efficiency of Boilers. Robert D. Giammar.	91
EPA-600/2-77-008c. NO_x Formation in CO Flames. E. L. Merryman.	138
EPA-600/2-77-011. Particulate Collection Efficiency Measurements on an ESP Installed on a Coal-Fired Utility Boiler. John P. Gooch.	165
EPA-600/2-77-021. Alarm-level Monitor for SO_2 Emissions from Stationary Sources. Donald A. Wallace.	198
EPA-600/2-77-022. A Real-Time Measuring Device for Dense Particulate Systems. P. W. Chan.	198
EPA-600/2-77-025. Reduction of Nitrogen Oxide Emissions from Field Operating Package Boilers--Phase III of III. M. P. Heap.	139
EPA-600/2-77-026. Evaluation of Stationary Source Particulate Measurement Methods, Volume II Oil-Fired Steam Generators. Edward T. Peters.	199
EPA-600/2-77-056. Evaluation of Ceramic Filters for High-Temperature/High-Pressure Fine Particulate Control. G. G. Poe.	166
EPA-600/2-77-060. Seminar on In-Stack Particle Sizing for Particulate Control Device Evaluation. Douglas Van Osdell.	166
EPA-600/2-77-066a. Inventory of Combustion-Related Emissions From Statinary Sources (First Update). Owen W. Dykema.	139
EPA-600/2-77-067. Evaluation of Molten Scrubbing for Fine Particulate Control. G. G. Poe.	166
EPA-600/2-77-080. Pilot Plant Design for Chemical Desulfurization of Coal. L. J. Van Nice.	24
EPA-600/2-77-082. Coal and the Environment Abstract Series, Mine Drainage Bibliography 1910-1976. V. E. Gleason.	220
EPA-600/2-77-084. Recent USSR Literature on Control of Particulate Emissions from Stationary Sources. Charles E. Feazel.	167
EPA-600/2-77-110. Application of Foam Scrubbing to Fine Particle Control, Phase II. T. E. Ctvrtnicek.	167

	Pg. No.
EPA-600/2-77-122. Field Testing: Application of Combustion Modifications to Control Pollutant Emissions from Industrial Boilers--Phases I and II (Data Supplement). S. C. Hunter.	139
EPA-600/2-77-129. Operation and Maintenance of Particulate Control Devices on Coal-Fired Utility Boilers. Michael F. Szabo.	167
EPA-600/2-77-147. Synthetic Fuel Production From Solid Wastes. Roy C. Feber.	35
EPA-600/2-77-149. Ammonia Absorption/Ammonium Bisulfate Regeneration Pilot Plant for Flue Gas Desulfurization. P. C. Williamson.	121
EPA-600/2-77-155a. St. Louis Demonstration Final Report: Refuse Processing Plant Equipment, Facilities, and Enviornmental Evaluations. D. E. Fiscus.	102
EPA-600/2-77-155b. St. Louis Demonstration Final Report: Power Plant Equipment, Facilities and Environmental Evaluations. P. G. Gorman.	103
EPA-600/2-77-165. Magnesia FGD Process Testing on a Coal-Fired Power Plant. Dianne Summerer.	122
EPA-600/2-77-172. Venturi Scrubber Performance Model. Shui-Chow Yung.	168
EPA-600/2-77-173. Fine Particle Charging Development. D. H. Pontius.	168
EPA-600/2-77-190. Effects of Combustion Modifications for NO_x Control on Utility Boiler Efficiency and Combustion Stability. Owen W. Dykema.	140
EPA-600/2-77-193. Second EPA Fine Particle Scrubber Symposium. Richard Parker.	168
EPA-600/2-77-195. Final Report for Low Pressure Tests of the CPU-400 Pilot Plant. Not identified.	76
EPA-600/2-77-197. Evaluation of Foam Scrubbing as a Method for Collecting Fine Particulate. Geddes H. Ramsey.	169
EPA-600/2-77-199. Sampling and Modeling of Non-Point Sources at a Coal-Fired Utility. Gordon T. Brookman.	221
EPA-600/2-77-206. Pilot Plant Study of Conversion of Coal to Low Sulfur Fuel. Donald K. Fleming.	25
EPA-600/2-77-207. High Temperature Particulate Control with Ceramic Filters. D. F. Ciliberti.	169
EPA-600/2-77-235. Low NO_x Combustion Concepts for Advanced Power Generation Systems Firing Low-Btu Gas. T. J. Tyson.	140

Pg. No.

EPA-600/2-77-238. Fine Particle Collection by a Flux-Force/Condensation Scrubber: Pilot Demonstration. Seymour Calvert. 169

EPA-600/2-78-003. Estimating Environmental Damages from Surface Mining of Coal in Appalachia: A Case Study. Alan Randall. 42

EPA-600/2-78-004K. Source Assessment: Coal Storage Piles. T. R. Blackwood. 44

EPA-600/2-78-004m. Source Assessment: Water Pollutants From Coal Storage Areas. R. A. Wachter. 44

EPA-600/2-78-004v. Source Assessment: Coal Refuse Piles, Abandoned Mines and Outcrops, State of the Art. P. K. Chalekode. 44

EPA-600/2-78-004x. Source Assessment: Open Mining of Coal State of the Art. S. J. Rusek. 45

EPA-600/2-78-007. Evaluation of a Sulfur Dioxide Mass Emission Rate Monitoring System. Roosevelt Rollins. 188

EPA-600/2-78-032. Evaluation of Three Industrial Particulate Scrubbers. Seymour Calvert. 154

EPA-600/2-78-062. Evaluation of Four Novel Fine Particulate Collection Devices. S. Calvert. 155

EPA-600/2-78-063. Demonstration/Evaluation of the Cat-Ox Flue Gas Desulfurization System--Final Report. R. Bee. 43

EPA-600/2-78-068. Acid Mine Drainage and Subsidence: Effects of Increased Coal Utilization. Ronald D. Hill. 45

EPA-600/2-78-114. Use of Solar Energy to Heat Anaerobic Digesters; Part I - Technical and Economic Feasibility Study; Part II - Economic Feasibility Throughout the United States. Jess W. Malcolm. 100

EPA-600/2-78-217. Combustion Modification Effects on NO_x Emissions from Gas-, Oil-, and Coal-Fired Utility Boilers. Owen W. Dykema. 133

EPA-600/2-79-019a. Source Assessment: Residential Combustion of Coal. D. G. DeAngelis. 56

EPA-600/2-79-022. Multiwavelength Transmissiometer for Measuring Mass Concentration of Particulate Emissions. Eli Reisman. 184

EPA-600/2-79-023. Continuous Reading Lidar Technique for Measuring Plume Opacity. Dilip G. Saraf. 184

EPA-600/7-76-010. Symposium on Particulate Control in Energy Processes. David E. Blake. 179

	Pg. No.
EPA-600/7-76-011. Studies of the Pressurized Fluidized-Bed Coal Combustion Process. R. C. Hoke.	17
EPA-600/7-76-012. Inventory of Combustion-Related Emissions from Stationary Sources. Owen W. Dykema.	146
EPA-600/7-76-016. Conference on Particulate Collection Problems in Converting to Low Sulfur Coals. G. B. Nichols.	180
EPA-600/7-76-017. Preliminary Environmental Assessment of the CAFB. A. S. Werner.	17
EPA-600/7-76-018. Control of Waste and Water Pollution From Power Plant Flue Gas Cleaning Systems: First Annual R and D Report. P. P. Leo.	80
EPA-600/7-76-020. A State-of-the-Art Report on Intake Technologies. S. S. Ray.	81
EPA-600/7-76-021. TVA's 1-MW Pilot Plant: Vertical Duct Mist Elimination Testing--Progress Report. G. A. Hollinden.	180
EPA-600/7-76-022. Survey of Emissions Control and Combustion Equipment Data In Industrial Process Heating. Peter A. Ketels.	106
EPA-600/7-76-026. Parametric Studies of Catalysts for NO_x Control from Stationary Power Plants. Ken Nobe.	147
EPA-600/7-76-029. Emissions from Residential and Small Commercial Stoker-Coal-Fired Boilers Under Smokeless Operation. Robert D. Giammar.	180
EPA-600/7-76-030. Feasibility of Producing Elemental Sulfur from Magnesium Sulfite. Philip S. Lowell.	129
EPA-600/7-76-031. Catalytic Reduction of Nitrogen Oxides with Ammonia: Utility Pilot Plant Operation. J. M. Kline.	147
EPA-600/7-76-033. Technology and Economics of Flue Gas NO_x Oxidation by Ozone. J. W. Harrison.	147
EPA-600/7-76-035. Production and Processing of U.S. Tar Sands, An Environmental Assessment. N. A. Frazier.	39
EPA-600/7-76-036. Assessment of Environmental Aspects of Uranium Mining and Milling. A. K. Reed.	53
EPA-600/7-77-001. Fine Particle Emissions Information System User Workshop. M. P. Schrag.	170
EPA-600/7-77-002. Effects of Temperature and Pressure on Particle Collection Mechanisms: Theoretical Review. Seymour Calvert.	170

Pg. No.

EPA-600/7-77-005. Evaluation of the General Motors' Double Alkali SO_2 Control System. Edward Interess. 140

EPA-600/7-77-006. Applicability of NO_x Combustion modifications to Cyclone Boilers (Furnaces). T. E. Ctvrtnicek. 141

EPA-600/7-77-009. Procedures Manual for Environmental Assessment of Fluidized-Bed Combustion Processes. H. I. Abelson. 13

EPA-600/7-77-010. Characterization of Ash from Coal-Fired Power Plants. S. S. Ray. 170

EPA-600/7-77-011. Application of Fluidized-Bed Technology to Industrial Boilers. M. H. Farmer. 13

EPA-600/7-77-012. The U.S. Environmental Protection Agency's Fluidized-Bed Combustion Program, FY 1976. Not identified. 14

EPA-600/7-77-013. EPA and ERDA High-Temperature/High-Pressure Particulate Control Programs. R. A. Kennedy. 171

EPA-600/7-77-014. Demonstration of Wellman-Lord/Allied Chemical FGD Technology: Boiler Operating Characteristics. R. C. Adams. 122

EPA-600/7-77-015. Monitoring Environmental Impacts of the Coal and Oil Shale Industries, Research and Development Needs. D. C. Jones. 52

EPA-600/7-77-018. Magnesia Scrubbing Applied to a Coal-Fired Power Plant. George Koehler. 122

EPA-600/7-77-019. TVA's 1-MW Pilot Plant: Final Report on High-velocity Scrubbing and Vertical Duct Mist Elimination. G. Hollinden. 171

EPA-600/7-77-020. Power Plant Stack Plumes in Complex Terrain, An Appraisal of Current Research. Robert C. Koch. 210

EPA-600/7-77-021. Sulfates in the Atmosphere, A Progress Report on Project MISTT. W. E. Wilson. 211

EPA-600/7-77-022. Filter Cake Redeposition in a Pulse-Jet Filter. David Leith. 171

EPA-600/7-77-023. Fractional Efficiency of an Electric Arc Furnace Baghouse. Reed W. Cass. 172

EPA-600/7-77-024. Western Energy/Environment Monitoring Study Planning and Coordination Summary. Gregory J. D'Alessio. 199

EPA-600/7-77-025. Field Investigations of Mechanical Draft Cooling Tower Plumes. Lawrence D. Winiarski. 199

	Pg. No.
EPA-600/7-77-026. Analysis and Simulation of Recycle SO_2-Lime Slurry in TCA Scrubber System. C. Y. Wen.	76
EPA-600/7-77-027. First Trials of CAFB Pilot Plant on Coal. D. Lyon.	14
EPA-600/7-77-028. National Plan for the Safety and Health of Divers in their Quest for Subsea Energy. Charles W. Shilling.	215
EPA-600/7-77-029. Sorbent Selection for the CAFB Residual Oil Gasification Demonstration Plant. E. P. O'Neill.	14
EPA-600/7-77-030. Alternatives to Chlorination for Control of Condenser Tube Bio-Fouling. H. H. S. Yu.	221
EPA-600/7-77-031. High-Temperature Desulfurization of Low-Btu Gas. G. P. Curran.	123
EPA-600/7-77-033. Compact, In-Stack, Three Size Cut Particle Classifier. George E. Lacey.	172
EPA-600/7-77-034. Method for Analyzing Emissions from Atmospheric Fluidized-Bed Combustor. E. L. Merryman.	15
EPA-600/7-77-035. Heat Pumps: Substitutes for Outmoded Fossil-Fueled Systems. E. A. Picklesimer.	63
EPA-600/7-77-036. Trace Analysis of Arsenic by Colorimetry, Atomic Absorption and Polarography. Lyman H. Howe.	200
EPA-600/7-77-037. Water Requirements to: Steam-Electric Power Generation and Synthetic Fuel Plants in the Western United States. H. Gold.	35
EPA-600/7-77-039. Environmental Assessment of Geopressured Waters and Their Project Uses. J. S. Wilson.	92
EPA-600/7-77-040. European Developments in the Recovery of Energy and Materials from Municipal Solid Waste. W. David Conn.	103
EPA-600/7-77-041. Survey of Sulfate, Nitrate, and Acid Aerosol Emissions and Their Control. J. F. Kircher.	172
EPA-600/7-77-042. EPA Research in Fabric Filtration: Annual Report on IERL-RTP Inhouse Program. James H. Turner.	173
EPA-600/7-77-043. IERL-RTP Procedures Manual: Level 1 Environmental Assessment Biological Tests For Pilot Studies. K. M. Duke.	200
EPA-600/7-77-044. Selection and Evaluation of Sorbent Resins for the Collection of Organic Compounds. J. Adams.	173

	Pg. No.
EPA-600/7-77-045. In-Situ Coal Gasification: Status of Technology and Environmental Impact. Nancy P. Phillips.	35
EPA-600/7-77-046. Seeking Environmental Compatibility A Review of Environmental Issues Related to the Transportation of Alaskan North Slope Crude Oil. Richard D. Brown.	92
EPA-600/7-77-047a. Western Energy/Environment Monitoring Atlas. Remote Sensing Division, Monitoring Operations Division.	200
EPA-600/7-77-047b. Western Energy/Environment Monitoring Atlas: Overhead Monitoring Appendix. Remote Sensing Division.	201
EPA-600/7-77-048. Environmental Effects of Energy-Abstracts of Selected Projects Supported by EPA Funds. Philip L. Johnson.	221
EPA-600/7-77-049. Ambient Hydrocarbon and Ozone Concentrations Near a Refinery. H. H. Westberg.	211
EPA-600/7-77-050a. Final Report: Dual Alkali Test and Evaluation Program; Volume I. Executive Summary. C. R. LaMantia.	123
EPA-600/7-77-050b. Final Report: Dual Alkali Test and Evaluation Program; Volume II. Laboratory and Pilot Plant Programs. C. R. LaMantia.	123
EPA-600/7-77-050c. Final Report: Dual Alkali Test and Evaluation Program; Volume III. Prototype Test Program-Plant Scholtz. C. R. LaMantia.	124
EPA-600/7-77-051. An Evaluation of the Disposal of Flue Gas Desulfurization Wastes in Mines and the Ocean: Initial Assessment. R. R. Lunt.	77
EPA-600/7-77-052. Disposal of By-Products From Nonregenerable Flue Gas Desulfurization Systems: Second Progress Report. J. Rossoff.	77
EPA-600/7-77-053. Bromine Chloride--An Alternative to Chlorine for Fouling Control in Condenser Cooling Systems. Leonard H. Bongers.	222
EPA-600/7-77-054. Preliminary Environmental Assessment of Coal-Fired Fluidized-Bed Comustion Systems. Paul F. Fennelly.	15
EPA-600/7-77-055. The Measurement of Carcinogenic Vapors in Ambient Atmospheres. Edo D. Pellizzari.	215
EPA-600/7-77-056. Hydrocarbon and Oxidant Chemistry Observed at a Site Near St. Louis. R. A. Rasmussen.	211
EPA-600/7-77-057. Evaluation of Background Data Relating to New Source Performance Standards for Lurgi Gasification. J. W. Sinor.	36

	Pg. No.
EPA-600/7-77-058. HP-25 Programmable Pocket Calculator Applied to Air Pollution Measurement Studies: Stationary Sources. James W. Ragland.	201
EPA-600/7-77-059. Procedures Manual for Electrostatic Precipitator Evaluation. Wallace B. Smith.	173
EPA-600/7-77-060. Inertial Cascade Impactor Substrate Media for Flue Gas Sampling. Larry G. Felix.	174
EPA-600/7-77-061. Sludge Oxidation in Limestone FGD Scrubbers. Robert H. Borgwardt.	77
EPA-600/7-77-062. Development Status and Environmental Hazards of Several Advanced Energy Systems. Morris Penny.	103
EPA-600/7-77-063. Renovation of Power Plant Cooling Tower Blowdown for Recycle by Evaporation: Crystallization with Interface Enhancement. Hugo H. Sephton.	78
EPA-600/7-77-065. Water Conservation and Pollution Control in Coal Conversion Processes. David J. Goldstein.	36
EPA-600/7-77-066. Review of Laser Raman and Fluorescence Techniques for Practical Combustion Diagnostics. A. C. Eckbreth.	201
EPA-600/7-77-067. Paleoenvironment of Coal and Its Relation to Drainage Quality. Frank T. Caruccio.	53
EPA-600/7-77-068. Onsite Control of Sedimentation Utilizing the Modified Block-Cut Method of Surface Mining. C. T. Haan.	53
EPA-600/7-77-069. A Preliminary Assessment of the Environmental Impacts from Oil Shale Developments. K. W. Crawford.	54
EPA-600/7-77-071. High-Temperature and High-Pressure Particulate Control Requirements. Richard Parker.	174
EPA-600/7-77-072a. Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume I Summary. Irvin L. White.	64
EPA-600/7-77-072b. Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume II Detailed Analyses and Supporting Materials. Irvin L. White.	64
EPA-600/7-77-072c. Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Volume III Preliminary Policy Analysis. Irvin L. White.	64

Pg. No.

EPA-600/7-77-072d. Energy From the West: A Progress Report of a Technology Assessment of Western Energy Resource Development Appendices. Irvin L. White. 65

EPA-600/7-77-073a. Proceedings of the Second Stationary Source Combustion Symposium Volume I. Small Industrial, Commercial, and Residential Systems. J. S. Bowen. 92

EPA-600/7-77-073b. Proceedings of the Second Stationary Source Combustion Symposium Volume II. Utility and Large Industrial Boilers. J. S. Bowen. 93

EPA-600/7-77-073c. Proceedings of the Second Stationary Source Combustion Symposium Volume III. Stationary Engine, Industrial Process Combustion System, and Advanced Processes. J. S. Bowen. 93

EPA-600/7-77-073d. Proceedings of the Second Stationary Source Combustion Symposium Volume IV. Fundamental Combustion Research. J.S. Bowen. 93

EPA-600/7-77-073e. Proceedings of the Second Stationary Source Combustion Symposium Volume V. Addendum. J. S. Bowen. 94

EPA-600/7-77-074. Laboratory Study of Limestone Regeneration in Dual Alkali Systems. J. E. Oberholtzer. 124

EPA-600/7-77-075. Flue Gas Desulfurization Using Fly Ash Alkali Derived from Western Coals. H. M. Ness. 124

EPA-600/7-77-076. Aerosol Research Branch, Annual Report FY1976/76A, Federal Interagency Energy/Environment Research and Development Program. W. F. Wilson. 202

EPA-600/7-77-077. EPA's Stationary Source Combustion Control Technology Program-FY 1976. Not Identified. 94

EPA-600/7-77-078. Fusion Method for the Measurement of Plutonium in Soil: Single-Laboratory Evaluation and Interlaboratory Collaborative Test. P. B. Hahn. 202

EPA-600/7-77-079. Characterization of Emissions from Plutonium-Uranium Oxide Fuel Fabrication. E. W. Bretthauer. 202

EPA-600/7-77-080. Offshore Oil and Gas Extraction, An Environmental Review. N. A. Frazier. 54

EPA-600/7-77-081. Process Technology Background for Environmental Assessment/Systems Analysis Utilizing Residual Fuel Oil. M. F. Tyndall. 94

EPA-600/7-77-082. Potential Radioactive Pollutants Resulting from Expanded Energy Programs. Hong Lee. 203

	Pg. No.
EPA-600/7-77-083. Long-Term Environmental Effectiveness of Close Down Procedures - Eastern Underground Coal Mines. M. F. Bucek.	54
EPA-600/7-77-084. Filtration Model for Coal Fly Ash with Glass Fabrics. R. Dennis.	174
EPA-600/7-77-085. Environmental Impact Statement for a Hypothetical 1000 MW_e Photovoltaic Solar-Electric Plant. D. Richard Sears.	104
EPA-600/7-77-086. Preliminary Environmental Assessment of Solar Energy Systems. D. R. Sears.	104
EPA-600/7-77-087. Assessment of Large-Scale Photovoltaic Materials Production. M. G. Gandel.	104
EPA-600/7-77-088. Handbook for Analytical Quality Control in Radioanalytical Laboratories. L. G. Kanipe.	203
EPA-600/7-77-089. Least-Squares Analysis of Gamma-Ray Spectra In Environmental Samples. L. G. Kanipe.	203
EPA-600/7-77-090. Elkins Mine Drainage Pollution Control Demonstration Project. Staff, Resource Extraction and Handling Division.	55
EPA-600/7-77-091. Environmental Assessment of Waste-To-Energy Processes: Source Assessment Document. K. P. Ananth.	105
EPA-600/7-77-092. Geothermal Industry Position Paper: EPA Regulatory Options and R&D Needs. Gregory J. D'Alessio.	105
EPA-600/7-77-093. Reclamation of Surface Mined Coal Spoils. Richard I. Barnhisel.	222
EPA-600/7-77-094a. Burner Design Criteria for NO_x Control from Low-Btu Gas Combustion; Volume I. Ambient Fuel Temperature. Donald R. Shoffstall.	141
EPA-600/7-77-094b. Burner Design Criteria for NO_x Control from Low-Btu Gas Combustion; Volume II. Elevated Fuel Temperature. Donald R. Shoffstall.	141
EPA-600/7-77-095a. EPA Fabric Filtration Studies: Bag Aging Effects. R. P. Donovan.	175
EPA-600/7-77-095b. EPA Fabric Filtration Studies: Bag Cleaning Technology (High Temperature Tests). B. E. Daniel.	175
EPA-600/7-77-097. Production Cycles in Aquatic Microcosms. A. Jassby.	222
EPA-600/7-77-098. Petroleum Hydrocarbon Baseline Investigation for Northern Puget Sound and the Strait of Juan de Fuca. William D. MacLeod, Jr.	223

	Pg. No.
EPA-600/7-77-099. Use of Potassium Ferrate in Oxygen Demand Measurement. James D. Carr.	203
EPA-600/7-77-100. Guide to Preselection of Training Samples and Ground Truth Collection. Charles E. Tanner.	204
EPA-600/7-77-101. Energy Consumption of Environmental Controls: Fossil Fuel, Steam Electric Generating Industry. Brian Murphy.	65
EPA-600/7-77-102. EPA Program Status Report: Synthetic Fuels from Coal (Including Process Overview with Emphasis on Environmental Considerations). Morris Altschuler.	36
EPA-600/7-77-103a. SO_2 Abatement for Stationary Sources in Japan. J. Ando.	125
EPA-600/7-77-103b. NO_x Abatement for Stationary Sources in Japan. J. Ando.	142
EPA-600/7-77-104. Literature Survey of Emissions Association with Emerging Energy Technologies. J. E. Sickles.	175
EPA-600/7-77-105. EPA Alkali Scrubbing Test Facility: Advanced Program, Third Progress Report. Harlan N. Head.	125
EPA-600/7-77-106. Effective Control of Secondary Water Pollution from Flue Gas Desulfurization Systems. Lanny D. Weimer.	125
EPA-600/7-77-107. Studies of the Pressurized Fluidized-Bed Coal Combustion Process. R. C. Hoke.	15
EPA-600/7-77-108. Study of a Thermal Aerosol Oil Burner. J. E. Janssen.	105
EPA-600/7-77-109. Precipitation Chemistry of Magnesium Sulfite Hydrates in Magnesium Oxide Scrubbing. Philip S. Lowell.	126
EPA-600/7-77-110. Hydrocarbon Pollutants from Stationary Sources. E. C. Cavanaugh.	176
EPA-600/7-77-112. Health Effects Related Research Summary, FY75-77. J. Dorigan.	215
EPA-600/7-77-113. Environmental Pathways of Selected Pollutants in Freshwater Systems Part I: Background and Experimental Procedures. J. H. Smith.	212
EPA-600/7-77-114. Chemically Active Fluid Bed (CAFB) Process Solids-Transport Studies. John A. Bazan.	16
EPA-600/7-77-115. Nonwoven Fabric Filters for Particulate Removal in Respirable Dust Range. Bernard Miller.	176

Pg. No.

EPA-600/7-77-099. Use of Potassium Ferrate in Oxygen Demand Measurement. James D. Carr. 203

EPA-600/7-77-100. Guide to Preselection of Training Samples and Ground Truth Collection. Charles E. Tanner. 204

EPA-600/7-77-101. Energy Consumption of Environmental Controls: Fossil Fuel, Steam Electric Generating Industry. Brian Murphy. 65

EPA-600/7-77-102. EPA Program Status Report: Synthetic Fuels from Coal (Including Process Overview with Emphasis on Environmental Considerations). Morris Altschuler. 36

EPA-600/7-77-103a. SO_2 Abatement for Stationary Sources in Japan. J. Ando. 125

EPA-600/7-77-103b. NO_x Abatement for Stationary Sources in Japan. J. Ando. 142

EPA-600/7-77-104. Literature Survey of Emissions Association with Emerging Energy Technologies. J. E. Sickles. 175

EPA-600/7-77-105. EPA Alkali Scrubbing Test Facility: Advanced Program, Third Progress Report. Harlan N. Head. 125

EPA-600/7-77-106. Effective Control of Secondary Water Pollution from Flue Gas Desulfurization Systems. Lanny D. Weimer. 125

EPA-600/7-77-107. Studies of the Pressurized Fluidized-Bed Coal Combustion Process. R. C. Hoke. 15

EPA-600/7-77-108. Study of a Thermal Aerosol Oil Burner. J. E. Janssen. 105

EPA-600/7-77-109. Precipitation Chemistry of Magnesium Sulfite Hydrates in Magnesium Oxide Scrubbing. Philip S. Lowell. 126

EPA-600/7-77-110. Hydrocarbon Pollutants from Stationary Sources. E. C. Cavanaugh. 176

EPA-600/7-77-112. Health Effects Related Research Summary, FY75-77. J. Dorigan. 215

EPA-600/7-77-113. Environmental Pathways of Selected Pollutants in Freshwater Systems Part I: Background and Experimental Procedures. J. H. Smith. 212

EPA-600/7-77-114. Chemically Active Fluid Bed (CAFB) Process Solids-Transport Studies. John A. Bazan. 16

EPA-600/7-77-115. Nonwoven Fabric Filters for Particulate Removal in Respirable Dust Range. Bernard Miller. 176

	Pg. No.
EPA-600/7-77-116. Century Industrial Products FRP-100 Wet Scrubber Evaluation. D. S. Ensor.	126
EPA-600/7-77-117. Overfire Air Technology for Tangentially Fired Utility Boilers Burning Western U.S. Coal. Richard L. Burrington.	142
EPA-600/7-77-118. Data Base for Standards/Regulations Development for Land Disposal of Flue Gas Cleaning Sludges. Dallas E. Weaver.	78
EPA-600/7-77-119a. Preliminary Environmental Assessment of Combustion Modification Techniques: Volume I. Summary. H. B. Mason.	142
EPA-600/7-77-119b. Preliminary Environmental Assessment of Combustion Modification Techniques: Volume II. Technical Results. H. B. Mason.	143
EPA-600/7-77-120. A Region's Energy Future: The ORBES Experience. James J. Stukel.	65
EPA-600/7-77-121. Underway Water Sampling Systems-An Applications Study. Ronald New.	204
EPA-600/7-77-122. Experimental Air Exclusion System for Field Studies of SO_2 Effects on Crop Productivity. H. C. Jones.	212
EPA-600/7-77-123. Lime/Limestone Scrubbing Sludge Characterization--Shawnee Test Facility. J. L. Crowe.	78
EPA-600/7-77-124. Catawissa Creek Mine Drainage Abatement Project. A. F. Miorin.	55
EPA-600/7-77-125a. Environmental Assessment Data Base for Low/Medium-Btu Gasification Technology: Volume I. Technical Discussion. E. C. Cavanaugh.	37
EPA-600/7-77-125b. Environmental Assessment Data Base for Low/Medium-Btu Gasification Technology: Volume II. Appendices A-F. E. C. Cavanaugh.	37
EPA-600/7-77-126. Utility Boiler Design/Cost Comparison: Fluidized-Bed Combustion vs. Flue Gas Desulfurization. John T. Reese.	16
EPA-600/7-77-127. Technical Assessment of NO_x Removal Processes for Utility Application. H. L. Faucett.	143
EPA-600/7-77-128. Comparison of Wet Chemical and Instrumental Methods for Measuring Airborne Sulfate, Final Report. B. R. Appel.	204
EPA-600/7-77-129. Particle Size Definitions for Particulate Data Analysis. J. B. Galeski.	176
EPA-600/7-77-130. EPA Program Conference Report - Coal Cleaning - An Option for Increased Coal Utilization. R. E. Balzhiser.	25

	Pg. No.
EPA-600/7-77-131. Use of Electrostatically Charged Fog for Control of Fugitive Dust Emissions. Stuart A. Hoenig.	177
EPA-600/7-77-132. Development of a High-Temperature/High-Pressure Electrostatic Precipitator. J. R. Bush.	177
EPA-600/7-77-134. Environmental Residuals Output Model for Operation and Expansion of an Electric Power System. Barry D. Evans.	79
EPA-600/7-77-136a. Multimedia Environmental Goals for Environmental Assessment, Volume I. J. G. Cleland.	95
EPA-600/7-77-136b. Multimedia Environmental Goals for Environmental Assessment, Volume II. MEG Charts and Background Information. J. G. Cleland.	95
EPA-600/7-77-137. Wet/Dry Cooling Systems for Fossil-Fueled Power Plants: Water Conservation and Plume Abatement. M. C. Hu.	79
EPA-600/7-77-138. Supportive Studies in Fluidized-Bed Combustion. A. Jonke.	16
EPA-600/7-77-139. Environmental Assessment of Solid Residues From Fluidized-Bed Fuel Processing. Ralph Stone.	79
EPA-600/7-77-140. Particulate Control with Cleanable Cartridge Filters Using Double-Layer Media. William J. Krisko.	177
EPA-600/7-77-141. Analyses of Grab Samples from Fixed-Bed Coal Gasification Processes. Karl J. Bombaugh.	37
EPA-600/7-77-142. Environmental Assessment of Low/Medium-Btu Gasification: Annual Report. E. C. Cavanaugh.	38
EPA-600/7-77-144. Quality Control for Environmental Measurements Using Gamma-Ray Spectrometry. Lee H. Ziegler.	205
EPA-600/7-77-145. An Evaluation of Personal Sampling Pumps in Sub-Zero Temperatures. Carl D. Parker.	205
EPA-600/7-77-146. A Feasibility Study of a Pocket-Sized Gas Chromatographic Air Analyzer. Stephen C. Terry.	205
EPA-600/7-77-147. Development and Fabrication of a Prototype Fibrous Aerosol Monitor (FAM). Pedro Lilienfeld.	205
EPA-600/7-77-148. Second Symposium on Fugitive Emissions: Measurement and Control. J. King.	178
EPA-600/7-78-001. Energy Consumption of Advanced Wastewater Treatment at Ely, Minnesota. Donald J. Hernandez.	71

	Pg. No.
EPA-600/7-78-002. Engineering/Economic Analyses of Coal Preparation with SO_2 Cleanup Processes for Keeping Higher Sulfur Coals in the Energy Market. The Hoffman-Muntner Corporation.	22
EPA-600/7-78-003. Environmental Overview of Texas Lignite Development. D. Harner.	45
EPA-600/7-78-004. Identification of Components of Energy-Related Wastes and Effluents. E. D. Pellizzari.	72
EPA-600/7-78-005. Alternatives to Calcium-Based SO_2 Sorbents for Fluidized-Bed Combustion: Conceptual Evaluation. Richard A. Newby.	11
EPA-600/7-78-006. Site Selection and Design for Minimizing Pollution from Underground Coal Mining Operations. Reynold Q. Shorts.	46
EPA-600/7-78-007. Recommended Health and Safety Guidelines for Coal Gasification Pilot Plants. Not Identified.	28
EPA-600/7-78-008. Development and Laboratory Evaluation of a Five-Stage Cyclone System. Wallace B. Smith.	188
EPA-600/7-78-009. Particulate Sampling Support: 1977 Annual Report. K. M. Cushing.	155
EPA-600/7-78-010. Project Manual for Full-Scale Dual-Alkali Demonstration at Louisville Gas and Electric Co.--Preliminary Design and Cost Estimate. R. P. VanNess.	110
EPA-600/7-78-010a. Executive Summary for Full-Scale Dual-Alkali Demonstration at Louisville Gas and Electric Co.--Preliminary Design and Cost Estimate. R. P. VanNess.	110
EPA-600/7-78-011. Measurement of High-Temperature, High-Pressure Processes: Annual Report. Larry Cooper.	155
EPA-600/7-78-012. Work Plan for Completing a Technology Assessment of Western Energy Resource Development. Irvin L. White.	63
EPA-600/7-78-013. Characterization and Generation of Metal Aerosols. Neil Zimmerman.	188
EPA-600/7-78-014. Survey of Environmental Regulations Applying to Geothermal Exploration, Development and Use. Mrs. Gene V. Beeland.	100
EPA-600/7-78-015. SAM/IA: A Rapid Screening Method for Environmental Assessment of Fossil Energy Process Effluents. L. M. Schalit.	86
EPA-600/7-78-016. EPA/IERL-RTP Interim Procedures for Level 2 Sampling and Analysis of Organic Materials. J. C. Harris.	189

	Pg. No.
EPA-600/7-78-017. Effect of Handling Procedures on Sample Quality. J. W. Adams.	189
EPA-600/7-78-018. Source Assessment Sampling System: Design and Development. D. E. Blake.	189
EPA-600/7-78-019. Environmental Assessment of Coal Liquefaction: Annual Report. Ken T. Budden.	28
EPA-600/7-78-020. EPA Program Status Report: Oil Shale. L. Eckstein.	28
EPA-600/7-78-021. Vegetative Stabilization of Spent Oil Shales, Vegetation Moisture Salinity & Runoff 1973-1976. H. P. Harbert, III.	46
EPA-600/7-78-022. First Order Estimates of Energy Requirements for Pollution Control. James L. Barker.	63
EPA-600/7-78-023a. Economics of Disposal of Lime/Limestone Scrubbing Wastes: Untreated and Chemically Treated Wastes. J. W. Barrier.	111
EPA-600/7-78-024. Disposal of Flue Gas Cleaning Wastes: EPA Shawnee Field Evaluation--Second Annual Report. R. B. Fling.	111
EPA-600/7-78-025. Environmental Assessment of High-Btu Gasification: Annual Report. M. Ghassemi.	29
EPA-600/7-78-026. SR-52 Programmable Calculator Programs for Venturi Scrubbers and Electrostatic Precipitators. Leslie E. Sparks.	156
EPA-600/7-78-028. Trace Element Characterization of Coal Wastes--First Annual Report. Eugene M. Wewerka.	46
EPA-600/7-78-028a. Trace Element Characterization of Coal Wastes--Second Annual Progress Report. E. M. Wewerka.	47
EPA-600/7-78-029. Atmospheric Chemistry of Potential Emissions From Fuel Conversion Facilities, A Smog Chamber Study. J. E. Sickles.	189
EPA-600/7-78-030a. Flue Gas Desulfurization Systems: Design and Operating Considerations Volume I. Executive Summary. C. C. Leivo.	111
EPA-600/7-78-030b. Flue Gas Desulfurization Systems: Design and Operating Considerations Volume II. Technical Report. C. C. Leivo.	112
EPA-600/7-78-031a. The Effect of Flue Gas Desulfurization Availability on Electric Utilities Volume I. Executive Summary. R. D. Delleney.	112
EPA-600/7-78-031b. The Effect of Flue Gas Desulfurization Availability on Electric Utilities Volume II. Technical Report. R. D. Delleney.	112

	Pg. No.
EPA-600/7-78-032a. Flue Gas Desulfurization System Capabilities for Coal-fired Steam Generators Volume I. Executive Summary. T. Devitt.	113
EPA-600/7-78-032b. Flue Gas Desulfurization System Capabilities for Coal-Fired Steam Generators Volume II. Technical Report. T. Devitt.	113
EPA-600/7-78-033. Effects of Alternative New Source Performance Standards on Flue Gas Desulfurization System Supply and Demand. V. P. Patel.	113
EPA-600/7-78-034. Physical Coal Cleaning for Utility Boiler SO_2 Emission Control. E. H. Hall.	22
EPA-600/7-78-035. Measurement of Fly Ash Resistivity Using Simulated Flue Gas Environments. R. E. Bickelhaupt.	156
EPA-600/7-78-036a. Control of Utility Boiler and Gas Turbine Pollutant Emissions by Combustion Modification--Phase I. A. R. Crawford.	134
EPA-600/7-78-037. Second US/USSR Symposium on Particulate Control. Franklin A. Ayer.	156
EPA-600/7-78-038. A Washability and Analytical Evaluation of Potential Pollution from Trace Elements in Coal. J. A. Cavallaro.	22
EPA-600/7-78-039. Regeneration of Calcium-Based SO_2 Sorbents for Fluidized-Bed Combustion: Engineering Evaluation. R. A. Newby.	11
EPA-600/7-78-040. Washington State Refineries: Petroleum, Petroleum Derivatives and Wastewater Effluent Characteristics. Joseph T. Pizzo.	218
EPA-600/7-78-041. Pollutant Measurements in Plumes from Power Plants and Cities, Summer 1975, February 1976, and February 1977, A Project MISTT Report. J. A. Ogren.	209
EPA-600/7-78-042. A Computer-Based Cascade Impactor Data Reduction System. J. W. Johnson.	157
EPA-600/7-78-043. Technical Manual: A Survey of Equipment and Methods for Particulate Sampling in Industrial Process Streams. W. B. Smith.	157
EPA-600/7-78-044a. Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Solid Waste Impact (Volume I. Executive Summary). P. P. Leo.	114
EPA-600/7-78-044b. Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Solid Waste Impact (Volume II. Technical Discussion). P. P. Leo.	114

	Pg. No.
EPA-600/7-78-045a. Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Water Pollution Impact (Volume I. Executive Summary). R. L. Sugarek.	114
EPA-600/7-78-045b. Controlling SO_2 Emissions from Coal-Fired Steam-Electric Generators: Water Pollution Impact (Volume II. Technical Discussion). R. L. Sugarek.	115
EPA-600/7-78-046. Environmental Assessment of Stationary Source NO_x Control Technologies: First Annual Report. L. R. Waterland.	134
EPA-600/7-78-047. Preliminary Environmental Assessment of Energy Conversion Processes for Agricultural and Forest Product Residues; Volume I. Benjamin J. Gikis.	100
EPA-600/7-78-048a. Survey of Flue Gas Desulfurization Systems: Cholla Station, Arizona Public Service Co. Bernard A. Laseke, Jr.	115
EPA-600/7-78-048b. Survey of Flue Gas Desulfurization Systems: Will County Station, Commonwealth Edison Co. Bernard A. Laseke, Jr.	115
EPA-600/7-78-048c. Survey of Flue Gas Desulfurization Systems: St. Clair Station, Detroit Edison Company. Bernard A. Laseke, Jr.	116
EPA-600/7-78-048d. Survey of Flue Gas Desulfurization Systems: La Cygne Station, Kansas City Power and Light Co. Bernard A. Laseke, Jr.	116
EPA-600/7-78-048e. Survey of Flue Gas Desulfurization Systems: Green River Station, Kentucky Utilities. Bernard A. Laseke, Jr.	116
EPA-600/7-78-049. Disposal of Solid Residue From Fluidized-Bed Combustion: Engineering and Laboratory Studies. C. C. Sun.	72
EPA-600/7-78-050. Evaluation of Trace Element Release from Fluidized-Bed Combustion Systems. M. A. Alvin.	11
EPA-600/7-78-051a. EPA Utility FGD Survey: December 1977 - January 1978. Bernard A. Laseke, Jr.	117
EPA-600/7-78-051b. EPA Utility FGD Survey: February-March 1978. N. Gregory.	117
EPA-600/7-78-051c. EPA Utility FGD Survey: April-May 1978. B. Laseke.	117
EPA-600/7-78-051d. EPA Utility FGD Survey: June-July 1978. M. Melia.	118
EPA-600/7-78-052a. EPA Industrial Boiler FGD Survey: First Quarter 1978. J. Tuttle.	118

	Pg. No.
EPA-600/7-78-052b. EPA Industrial Boiler FGD Survey: Second Quarter 1978. J. Tuttle.	118
EPA-600/7-78-052c. EPA Industrial Boiler FGD Survey: Third Quarter 1978. J. Tuttle.	118
EPA-600/7-78-053. Nitrogen Dioxide Photolytic, Radiometric, and Meteorological Field Data. J. E. Sickles.	134
EPA-600/7-78-054. Characterization of Sorbent Resins for Use in Environmental Sampling. R. F. Gallant.	190
EPA-600/7-78-055a. Water Recycle/Reuse Alternatives in Coal-Fired Steam-Electric Power Plants: Volume I. Plant Studies and General Implementation Plans. James G. Noblett.	72
EPA-600/7-78-055b. Water Recycle/Reuse Alternatives in Coal-Fired Steam-Electric Power Plants: Volume II. Appendixes. James G. Noblett.	73
EPA-600/7-78-056. Tests of Fabric Filtration Materials. Jan R. Koscianowski.	157
EPA-600/7-78-058a. Symposium on Flue Gas Desulfurization--Hollywood, FL, November 1977 (Volume I). Franklin A. Ayer.	119
EPA-600/7-78-058b. Symposium on Flue Gas Desulfurization--Hollywood, FL, November 1977 (Volume II). Franklin A. Ayer.	119
EPA-600/7-78-059. Field Investigation of Cooling Tower and Cooling Pond Plumes. Ronald E. West.	73
EPA-600/7-78-060. Performance Testing of Oil Mop Zero Relative Velocity Oil Skimmer. Michael K. Breslin.	47
EPA-600/7-78-061. Low- and Medium-Btu Gasification Systems: Technology Overview. Paul W. Spaite.	29
EPA-600/7-78-062. Measurement of Carcinogenic Vapors in Ambient Atmospheres, Final Report. Edo D. Pelizzari.	214
EPA-600/7-78-063. Environmental Aspects of Fuel Conversion Technology, III (September 1977, Hollywood, Florida). Franklin A. Ayer.	29
EPA-600/7-78-064. Investigations of Soils and Vegetative Damage: Vicinity of Hartsfield, Atlanta's International Airport--Mountain View, GA. K. W. Brown.	218
EPA-600/7-78-065. Sampling and Analysis Research Program at the Paraho Shale Oil Demonstration. J. E. Cotter.	101
EPA-600/7-78-066. A Review of Regional-Scale Air Quality Models for Long Distance Dispersion Modeling in the Four Corners Region. John A. Nuber.	210

Pg. No.

EPA-600/7-78-067. Effects of the Disposal of Coal Waste and Ashes in Open Pits. Jacek Libicki. 47

EPA-600/7-78-068. Combustion of Hydrothermally Treated Coals. E. P. Stambaugh. 23

EPA-600/7-78-069. Miniplant Studies of Pressurized Fluidized-Bed Coal Combustion: Third Annual Report. R. C. Hoke. 12

EPA-600/7-78-070. Potential Abatement Production and Marketing of Byproduct Sulfuric Acid in the U.S. J. I. Bucy. 73

EPA-600/7-78-071. Particulate Control for Fugitive Dust. George E. Weant, III. 158

EPA-600/7-78-072. Development of a Mathematical Basis for Relating Sludge Properties to FGD-Scrubber Operating Variables. J. L. Phillips. 74

EPA-600/7-78-073. Proceedings of the Engineering Foundation Conference on Clean Combustion of Coal. Victor S. Engleman. 23

EPA-600/7-78-074. Environmental Pathways of Selected Chemicals in Freshwater Systems Part II: Laboratory Studies. J. H. Smith. 219

EPA-600/7-78-075. Determination of Zinc, Cadmium, Lead, and Copper in Water by Anodic Stripping Voltammetry. Lyman H. Howe. 190

EPA-600/7-78-076. Application of Computer Graphics to Environmental Assessment of Energy Systems. Malcolm C. Babb. 87

EPA-600/7-78-077. Advanced Oil Processing/Utilization Environmental Engineering: EPA Program Status Report. P. P. Turner. 12

EPA-600/7-78-078. Applying Fabric Filtration to Refuse-Fired Boilers: A Pilot-Scale Investigation. J. D. McKenna. 101

EPA-600/7-78-079. Airborne Monitoring of Cooling Tower Effluents - Vol I: Technical Summary. George J. Woffinden. 190

EPA-600/7-78-080a. Testing Program for Mining Coal in an Oxygen Free Atmosphere - Volume 1. R. C. Taliaferro. 48

EPA-600/7-78-080b. Testing Program for Mining Coal in an Oxygen Free Atmosphere - Volume II - Appendices. R. C. Taliaferro. 48

EPA-600/7-78-081. Environmental Assessment of Coal Transportation. Michael F. Szabo. 87

EPA-600/7-78-082. Performance Testing of Three Offshore Skimming Devices. H. W. Lichte. 48

	Pg. No.
EPA-600/7-78-083. Evaluation of the U.S. Geological Survey Laboratory, Denver, CO. Robert L. Booth.	191
EPA-600/7-78-084. Energy Requirements of Present Pollution Control Technology. R. W. Serth.	87
EPA-600/7-78-085. Investigation of Matrix Interferences for AAS Trace Metal Analyses of Sediments. Mary M. McKown.	191
EPA-600/7-78-086. Engineering and Economic Analysis of Waste to Energy Systems. E. Milton Wilson.	74
EPA-600/7-78-087. Third Symposium on Fabric Filters for Particulate Collection. N. Suprenant.	158
EPA-600/7-78-088. Fuel Gas Environmental Impact: Final Report. F.L. Robson.	30
EPA-600/7-78-089. Coal Desulfurization Using Microwave Energy. Peter Zavitsanos.	119
EPA-600/7-78-090. Assessment of Technology for Control of Toxic Effluents from the Electric Utility Industry. J. D. Colley.	88
EPA-600/7-78-091. Standards of Practice Manual for the Solvent Refined Coal Liquefaction Process. P. J. Rogoshewski.	30
EPA-600/7-78-092. Research and Development and Cost Projections for Air Pollution Control Equipment. R. W. McIlvaine.	158
EPA-600/7-78-093. Evaluations of Novel Particulate Control Devices. Joseph D. McCain.	191
EPA-600/7-78-094. CEA Variable-Throat Venturi Scrubber Evaluation. Joseph D. McCain.	192
EPA-600/7-78-095. Studies of Dust Cake Formation and Structure in Fabric Filtration. Bernard Miller.	159
EPA-600/7-78-096. Preliminary Design and Initial Testing of a Mobile Electrostatic Precipitator. Grady B. Nichols.	159
EPA-600/7-78-097. Effects of Interfacial Properties on Collection of Fine Particles by Wet Scrubbers. G. J. Woffinden.	192
EPA-600/7-78-098. Particulate Control Mobile Test Units: Third Year's Operation. Donald L. Zanders.	192
EPA-600/7-78-099a. Emission Reduction on Two Industrial Boilers with Major Combustion Modifications. W. A. Carter.	135

	Pg. No.
EPA-600/7-78-100. Inventory of Combustion-Related Emissions from Stationary Sources (Second Update). Vernon E. Kemp.	135
EPA-600/7-78-101. Pollution Control Guidance for Geothermal Energy Development. Robert P. Hartley.	101
EPA-600/7-78-102. Mathematical Model for Multiple Cooling Tower Plumes. F. H. Y. Wu.	74
EPA-600/7-78-103. Portable Vacuum X-Ray Spectrometer, Instrument for On-Site Analysis of Airborne Particulate Sulfur and Other Elements. J. V. Gilfrich.	193
EPA-600/7-78-104. Investigation of Saturated Laser Fluorescence and CARS Spectroscopic Techniques for Combustion Diagnostics. A. C. Eckbreth.	193
EPA-600/7-78-105. Intercomparison of Plutonium - 239 Measurements. Lee H. Ziegler.	193
EPA-600/7-78-107. Environmental Assessment of Solid Residues from Fluidized-Bed Fuel Processing: Final Report. Ralph Stone.	88
EPA-600/7-78-108. Environmental Effects of Increased Coal Utilization: Ecological Effects of Gaseous Emissions from Coal Combustion. Norman R. Glass.	219
EPA-600/7-78-109. Response of a Salt Marsh to Oil Spill and Cleanup: Biotic and Erosional Effects in the Hackensack Meadowlands, New Jersey. Phillip C. Dibner.	49
EPA-600/7-78-110. Electrostatic Precipitator Technology Assessment: Visits in Japan, November 1977. Grady B. Nichols.	159
EPA-600/7-78-111a. A Mathematical Model of Electrostatic Precipitation (Revision 1): Volume I. Modeling and Programming. Jack R. McDonald.	160
EPA-600/7-78-111b. A Mathematical Model of Electrostatic Precipitation (Revision 1): Volume II. User Manual. Jack R. McDonald.	160
EPA-600/7-78-111c. A Mathematical Model of Electrostatic Precipitation: Computer Program. Jack R. McDonald.	160
EPA-600/7-78-112. Rapping Reentrainment in a Near Full Scale Pilot Electrostatic Precipitator. Grady B. Nichols.	161
EPA-600/7-78-113. Procedures Manual for Fabric Filter Evaluation. Kenneth M. Cushing.	161
EPA-600/7-78-114. An Electrostatic Precipitator Backup for Sampling Systems. P. Vann Bush.	161

	Pg. No.
EPA-600/7-78-115. EPA Evaluation of Bahco Industrial Boiler Scrubber System at Rickenbacker AFB. E. L. Biedell.	120
EPA-600/7-78-116. An Examination of Some Micrometeorological Methods for Measuring Dry Deposition. Bruce B. Hicks.	194
EPA-600/7-78-117. Analysis of Meteorological Conditions During the 1977 Anclote Keys-Plume Study. L. Hull.	210
EPA-600/7-78-118. Intercomparison of Samplers Used in the Determination of Aerosol Composition. D. C. Camp.	194
EPA-600/7-78-119. Demetallization Catalyst Tests on Heavy Residual Oils. V. V. Manshilin.	75
EPA-600/7-78-120a. Emission Characterization of Stationary NO_x Sources: Volume I. Results. K. G. Salvesen.	135
EPA-600/7-78-120b. Emission Characterization of Stationary NO_x Sources: Volume II. Data Supplement. K. G. Salvesen.	136
EPA-600/7-78-121. Proceedings of the Second Workshop on Sampling Geothermal Effluents. Subir Sanyal.	102
EPA-600/7-78-122. Anion Exchange Method for the Determination of Plutonium in Water: Single-Laboratory Evaluation and Interlaboratory Collaborative Study. C. T. Bishop.	194
EPA-600/7-78-123. Effects of Methyl Methanesulfonate and Dimethylnitrosamine on Syrian Hamster Sperm. Andrew J. Wyrobek.	214
EPA-600/7-78-124. An Engineering/Economic Analysis of Coal Preparation Plant Operation and Cost. Hoffman-Muntner.	23
EPA-600/7-78-125. Trace Organics Variation Across the Wastewater Treatment System of a Class-B Refinery. Wyman Harrison.	195
EPA-600/7-78-126. Seasonal Distribution, Trajectory Studies, and Sorption Characteristics of Suspended Particulate Matter in the Northern Puget Sound Region. Edward T. Baker.	219
EPA-600/7-78-127. A Case Study of the Fish and Wildlife Aspects of the Pre-Permit and Construction Phases of the Trans-Alaska Oil Pipeline. Thomas A. Morehouse.	220
EPA-600/7-78-128. Effects of Thermal Discharge on Aquatic Insects in the Tennessee Valley. K. J. Tennessen.	75
EPA-600/7-78-129. Evaluation of Electrostatic Precipitator During SRC Combustion Tests. Grady B. Nichols.	162

Pg. No.

EPA-600/7-78-130. Evaluation of the PILLS IV. William E. Farthing. 162

EPA-600/7-78-131. Performance of a High Velocity Pulse-Jet Filter. David Leith. 195

EPA-600/7-78-132a. A Data Reduction System for Cascade Impactors. J. D. McCain. 195

EPA-600/7-78-133. Cleanup Efficiency and Biological Effects of a Fuel Oil Spill in Cold Weather: The 1977 *Bouchard No. 65* Oil Spill in Buzzards Bay, Massachusetts. Eric Schrier. 49

EPA-600/7-78-134. Guidelines for Preparing Environmental Test Plans for Coal Gasification Plants. G. C. Page. 30

EPA-600/7-78-135. Characterization of Solid Residues from Fluidized-Bed Combustion Units. James L. Crowe. 12

EPA-600/7-78-136a. Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site A. J. E. Gabrielson. 196

EPA-600/7-78-136b. Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site A (Data Supplement). J. E. Gabrielson. 196

EPA-600/7-78-137. Evaluation of the United States Geological Survey Laboratory, Atlanta, Georgia. Robert L. Booth. 196

EPA-600/7-78-138. Conventional Combustion Environmental Assessment Program: First Annual Report. J. Bruce. 136

EPA-600/7-78-139. Survey of Projects Concerning Conventional Combustion Environmental Assessments. W. E. Thompson. 136

EPA-600/7-78-140. A Program for the Environmental Assessment of Conventional Combustion Processes. Deepak C. Kenkeremath. 137

EPA-600/7-78-141. EPA Fabric Filtration Studies: Influence of Dust Properties on Particle Penetration. R. P. Donovan. 162

EPA-600/7-78-142b. Electrostatic Effects in Fabric Filtration: Volume II. Triboelectric Measurements and Bag Performance (Annotated Data). E. R. Frederick. 163

EPA-600/7-78-143. Investigation of Advanced Thermal-Chemical Concepts for Obtaining Improved MSW-Derived Products. N. L. Hecht. 102

EPA-600/7-78-145. The Vertical Planar Motion Mechanism; A Dynamic Test Apparatus for Evaluating Current Meters and Other Marine Instrumentation. A. N. Kalvaitis. 197

	Pg. No.
EPA-600/7-78-146. An Assessment of Mercury Emissions from Fossil Fueled Power Plants. Paul Clifford.	214
EPA-600/7-78-148. Microbial Degradation of Petroleum Hydrocarbons. D. W. S. Westlake.	49
EPA-600/7-78-149. Remote Monitoring of Coal Strip Mine Rehabilitation. James E. Anderson.	50
EPA-600/7-78-150. Assessment of Coal Cleaning Technology: First Annual Report. Lee C. McCandless.	24
EPA-600/7-78-151. Status of IERL-RTP Environmental Assessment Methodologies for Fossil Energy Processes. John L. Warren.	88
EPA-600/7-78-152. Optimization of Design Specifications for Large Dry Cooling Systems. Tzvi Rozenman.	75
EPA-600/7-78-153a. Low-Sulfur Western Coal Use in Existing Small and Intermediate Size Boilers. Kenneth L. Maloney.	89
EPA-600/7-78-155a. Review of New Source Performance Standards for Coal-Fired Utility Boilers, Volume 1: Emissions and Non-Air Quality Environmental Impacts. Not Identified.	120
EPA-600/7-78-155b. Review of New Source Performance Standards for Coal-Fired Utility Boilers, Volume II: Economic and Financial Impacts. Not Identified.	120
EPA-600/7-78-156. Overburden Mineralogy as Related to Ground-Water Chemical Changes in Coal Strip Mining. Arthur Hounslow.	50
EPA-600/7-78-157. Water Consumption and Costs for Various Steam Electric Power Plant Cooling Systems. M. C. Hu.	89
EPA-600/7-78-158. Sampling System Evaluation for High-Temperature, High-Pressure Processes. William Masters.	163
EPA-600/7-78-159. Catalyst Evaluation for Denitrogenation of Petroleim Residua and Coal Liquids. Cecelia C. Kang.	76
EPA-600/7-78-160. Oil Pollution Reports, Vol. 5 No. 2 (February 1978 - May 1978). Helmut Ehrenspeck.	50
EPA-600/7-78-163. Effect of SO_2 Emission Requirements on FLuidized-Bed Combustion Systems: Preliminary Technical/Economic Assessment. R. A. Newby.	121
EPA-600/7-78-164a. Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume I. Executive Summary. C. Leavitt.	89

Pg. No.

EPA-600/7-78-164b. Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume II. Comparative Assessment. C. Leavitt. 90

EPA-600/7-78-164c. Environmental Assessment of Coal- and Oil-Firing in a Controlled Industrial Boiler; Volume III. Comprehensive Assessment and Appendices. C. Leavitt. 90

EPA-600/7-78-165. Combustion Research on the Fate of Fuel-Nitrogen Under Conditions of Pulverized Coal Combustion. J. M. Levy. 137

EPA-600/7-78-166. Design and Construction of a Fluidized-Bed Combustion Sampling and Analytical Test Rig. H. Dehne. 13

EPA-600/7-78-167. Combustion Research on Characterization of Particulate Organic Matter from Flames. R. A. Hites. 163

EPA-600/7-78-168. Symposium Proceedings: Process Measurements for Environmental Assessment. Eugene A. Burns. 90

EPA-600/7-78-169. Evaluating the Sampling Frequencies of Water Quality Monitoring Networks. Robert C. Ward. 197

EPA-600/7-78-170. Symposium on New Concepts for Fine Particle Control. Teoman Ariman. 164

EPA-600/7-78-171. Pollutants from Synthetic Fuels Production: Facility Construction and Preliminary Tests. J. G. Cleland. 31

EPA-600/7-78-173a. Assessment of Coal Cleaning Technology: An Evalua- of Chemical Coal Cleaning Processes. G. Y. Cantes. 24

EPA-600/7-78-175. Environmental Assessment for Residual Oil Utilization-Second Annual Report. M. F. Tyndall. 91

EPA-600/7-78-176. Characterization of Carbide Lime to Identify Sulfite Oxidation Inhibitors. L. J. Holcombe. 121

EPA-600/7-78-177a. University of Washington Electrostatic Scrubber Tests at a Steel Plan. M. J. Pilat. 164

EPA-600/7-78-178. Electrified Bed Evaluation. William Piispanen. 164

EPA-600/7-78-180. USER's Manual for Premining Planning of Eastern Surface Coal Mining, Volume 1: Executive Summary. R. V. Ramani. 51

EPA-600/7-78-181. Assessment of Coal Conversion Wastewaters: Characterization and Preliminary Biotreatability. P. C. Singer. 220

EPA-600/7-78-182. Sensitized Fluorescence for the Detection of Polycyclic Aromatic Hydrocarbons. E. M. Smith. 197

	Pg. No.
EPA-600/7-78-184a. Environmental Assessment Data Base for Coal Liquefaction Technology: Volume I. Systems for 14 Liquefaction Processes. Craig S. Koralek.	31
EPA-600/7-78-184b. Environmental Assessment Data Base for Coal Liquefaction Technology: Volume II. Synthoil, H-Coal, and Exxon Donor Solvent Processes. C. Leon Parker.	31
EPA-600/7-78-185. Analysis for Radionuclides in SRC and Coal Combustion Samples. Pamela A. Koester.	32
EAP-600/7-78-186a. Environmental Assessment Data Base for High-Btu Gasification Technology: Volume I. Technical Discussion. M. Ghassemi.	32
EPA-600/7-78-186b. Environmental Assessment Data Base for High-Btu Gasification Technology: Volume II. Appendices A, B, and C. M. Ghassemi.	32
EPA-600/7-78-186c. Environmental Assessment Data Base for High-But Gasification Technology: Volume III. Appendices D, E, and F M. Ghassemi.	33
EPA-600/7-78-189. Analysis of Cascade Impactor Data for Calculating Particle Penetration. Phil A. Lawless.	165
EPA-600/7-78-190. Applicability of Petroleum Refinery Control Technologies to Coal Conversion. M. Ghassemi.	33
EPA-600/7-78-191. Pollutant Emissions from "Dirty" Low- and Medium-Btu Gases. R. T. Waibel.	137
EPA-600/7-78-193. Particle Collection by a Venturi Scrubber Downstream from an Electrostatic Precipitator. L. E. Sparks.	165
EPA-600/7-78-195. Effects of Charged Particles on Cascade Impactor Calibrations. R. G. Patterson.	165
EPA-600/7-78-197a. Water-Related Environmental Effects in Fuel Conversion: Volume I. Harris Gold.	33
EPA-600/7-78-197b. Water-Related Environmental Effects in Fuel Conversion: Volume II. Appendices. Harris Gold.	33
EPA-600/7-78-204. Preliminary Environmental Assessment of Biomass Conversion to Synthetic Fuels. S. T. DiNovo.	34
EPA-600/7-78-212. Impact of Point Source Control Strategies On NO_2 Levels. B. R. Eppright.	138
EPA-600/7-78-213. Reduction of Nitric Oxide with Metal Sulfides. F. P. McCandless.	138

	Pg. No.
EPA-600/7-78-217. Development of Sorbent Distribution and Recovery System. Sidney H. Shaw.	198
EAP-600/7-78-218. Oil Pollution Reports, Vol. 5 No. 3 (June 1978 - September 1978) Helmut Ehrenspeck.	51
EPA-600/7-78-219. Performance Testing of Selected Sorbent Booms. Gary F. Smith.	51
EPA-600/7-78-220. Protection, Cleanup, and Restoration of Salt Marshes Endangered by Oil Spills -- A Procedural Manual. D. J. Maiero.	52
EPA-600/7-78-222. Pollution Control Guidelines for Coal Refuse Piles and Slurry Ponds. W. A. Wahler and Associates.	52
EPA-600/7-78-232. Source Emission Tests at the Baltimore Demonstration Pyrolysis Facility. John L. Haslbeck.	34
EPA-600/7-79-010b. Power Plant Stack Plumes in Complex Terrain, Data Collected During an Aerometric Field Study. Robert C. Koch.	208
EPA-600/7-79-015b. Application of Combustion Modifications to Industrial Combustion Equipment (Data Supplement A) K. T. Fisher.	132
EPA-600/7-79-022b. EPA Utility FGD Survey: October-November 1978. M. Melia.	56
EPA-600/7-79-025a. Fuel Contaminants: Volume 3. Control of Coal-Related Pollutants. E. J. Mezey.	20
EPA-600/7-79-025b. Fuel Contaminants: Volume 4. Application of Oil Agglomeration to Coal Wastes. E. J. Mezey.	20
EPA-600/7-79-026. Typical Costs for Electric Energy Generation and Environmental Controls. M. G. Klett.	84
EPA-600/7-79-028. Guidelines for Particulate Sampling in Gaseous Effluents from Industrial Processes. R. R. Wilson.	150
EPA-600/7-79-029a. Emissions Assessment of Conventional Stationary Combustion Systems: Methods and Procedures Manual for Sampling and Analysis. J. W. Hamersma.	150
EPA-600/7-79-029c. Emissions Assessment of Conventional Stationary Combuston Systems: Volume II. Internal Combustion Sources. C. C. Shih.	150
EPA-600/7-79-030. Kinetics of Sulfur Dioxide Oxidation in Aqueous Solution. J. L. Hudson.	56

	Pg. No.
EPA-600/7-79-031. Filtration Parameters for Dust Cleaning Fabrics. Jan R. Koscianowski.	151
EPA-600/7-79-032. Level 1 Environmental Assessment Performance Evaluation. Eva D. Estes.	84
EPA-600/7-79-034. Evaluation of the Environmental Effects of Western Surface Coal Mining Volume II - Mine Inventory. William Kelly.	42
EPA-600/7-79-035. Tioga River Mine Drainage Abatement Project. A. F. Miorin.	42
EPA-600/7-79-036. Strip Mine Drainage--Aquatic Impact Assessment D. B. Cox.	208
EPA-600/7-79-037a. Design Optimization and Field Verification of an Integrated Residential Furnace--Phase I. A. S. Okuda.	132
EPA-600/7-79-039. Compendium Reports on Oil Shale Technology. G. C. Slawson.	184
EPA-600/7-79-041a. Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site B. J. E. Gabrielson.	132
EPA-600/7-79-041b. Field Tests of Industrial Stoker Coal-Fired Boilers for Emissions Control and Efficiency Improvement--Site B (Data Supplement). J. E. Gabrielson.	133
EPA-600/7-79-042. Comparative Assessment of Trace Metals from Coal- Versus Oil Firing in a Controlled Industrial Boiler. C. Y. Ung.	151
EPA-600/7-79-043c. Fabric Filter Model Format Change; Volume I. Detailed Technical Report. Richard Dennis.	151
EPA-600/7-79-044. Symposium on the Transfer and Utilization of Particulate Control Technology: Vol. 3. Scrubbers, Advanced Techology, and HTP Applications. F. P. Venditti.	152
EPA-600/7-79-044d. Symposium on the Transfer and Utilization of Particulate Control Technology: Vol. 4. Fugitive Dusts and Sampling, Analysis and Characterization of Aerosols. F. P. Venditti.	152
EPA-600/7-79-046. Disposal of By-Products from Non-Regenerable Flue Gas Desulfurization Systems: Final Report. J. Rossoff.	110
EPA-600/7-79-047. Measurement of PCB Emissions from Combustion Sources. P. L. Levins.	152

Pg. No.

EPA-600/7-79-048. Preliminary Environmental Assessment of the Lignite-Fired CAFB. A. S. Werner. 10

EPA-600/7-79-050a. Proceedings of the Third Stationary Source Combustion Symposium; Volume I. Utility, Industrial, Commercial, and Residential Systems. Joshua S. Bowen. 84

EPA-600/7-79-050b. Proceedings of the Third Stationary Source Combustion Symposium; Volume II. Advanced Processes and Special Topics. Joshua S. Bowen. 85

EPA-600/7-79-050c. Proceedings of the Third Stationary Source Combustion Symposium; Volume III. Stationary Engine and Industrial Process Combustion Systems. Joshua S. Bowen. 85

EPA-600/7-79-050d. Proceedings of the Third Stationary Source Combustion Symposium; Volume IV. Fundamental Combustion Research and Environmental Assessment. Joshua S. Bowen. 85

EPA-600/7-79-050e. Proceedings of the Third Stationary Source Combustion Symposium; Volume V. Addendum. Joshua S. Bowen. 86

EPA-600/7-79-051. Characterization of Coal Pile Drainage. Doye B. Cox. 20

EPA-600/7-79-052. Characterization of the EPA/IERL-RTP Pilot-Scale Precipitator. P. A. Lawless. 153

EPA-600/7-79-053. Camp Branch and Camp Cross Experimental Watershed Projects: Objectives, Facilities, and Ecological Characteristics. J. M. Kelly. 218

EPA-600/7-79-054. Application of Germanium Detectors to Environmental Monitoring. D. W. Nix. 185

EPA-600/7-79-055. MESOPAC: A Mesoscale Meteorology Package. Carl W. Benkley. 208

EPA-600/7-79-056. The Evaluation of Fluoride Ion-Selective Electrodes in Freshwater and Seawater. Gary K. Ward. 185

EPA-600/7-79-057. Test and Evaluation of Potassium Sensors in Fresh and Salt Water. Gary K. Ward. 185

EPA-600/7-79-058. Evaluation of Calcium Sensors in Fresh and Salt Water. Gary K. Ward. 186

EPA-600/7-79-059. Evaluation of the Orion Divalent Specific Ion Electrode. Gary K. Ward. 186

EPA-600/7-79-060a. Energy From the West: Energy Resource Development Systems Report - Volume I: Introduction and General Social Control. I. L. White. 60

	Pg. No.
EPA-600/7-79-060b. Energy From the West: Energy Resource Development Systems Report - Volume II: Coal. I. L. White.	60
EPA-600/7-79-060c. Energy From the West: Energy Resource Development Systems Report - Volume III: Oil Shale. I. L. White.	60
EPA-600/7-79-060d. Energy From the West: Energy Resource Development Systems Report - Volume IV: Uranium. I. L. White.	61
EPA-600/7-79-060e. Energy From the West: Energy Resource Development Systems Report - Volume V: Oil and Natural Gas. I. L. White.	61
EPA-600/7-79-060f. Energy From the West: Energy Resource Development Systems Report - Volume VI: Goethermal. I. L. White.	61
EPA-600/7-79-061. Evaluation of Sodium Ion Electrodes in Freshwater and Seawater. Gary K. Ward.	186
EPA-600/7-79-063a. Approach to Level 2 Analysis Based on Level 1 Results, MEG Categories and Compounds, and Decision Criteria. L. E. Ryan.	86
EPA-600/7-79-063b. Level 2 Chemical Analysis of Fluidized-Bed Combustor Samples. L. E. Ryan.	10
EPA-600/7-79-065. Advances in Particle Sampling and Measurement. (Asheville, NC, May 1978). W. B. Smith.	153
EPA-600/7-79-066. Chemically Active Fluid-Bed Process for Sulphur Removal During Gasification of Heavy Fuel Oil--Fourth Phase. A. W. Ramsden.	10
EPA-600/7-79-068. Revegetating Processed Oil Shale and Coal Spoils on Semi-Arid Lands - Interim Report. Neil Frischknecht.	21
EPA-600/7-79-069. Economics of Disposal of Lime/Limestone Scrubbing Wastes: Sluge/Flyash Blending and Gypsum Systems. J. W. Barrier.	70
EPA-600/7-79-070. Apitron Electrostatically Augmented Fabric Filter Evaluation. Larry G. Felix.	153
EPA-600/7-79-071. Mobile Bed Flux Force/Condensation Scrubbers. S. C. Yung.	154
EPA-600/7-79-072. EPA-Interagency Coal Cleaning Program: FY 1978 Progress Report. Robin D. Tems.	21
EPA-600/7-79-073a. Environmental Assessment of Coal Cleaning Processes: Master Test Plan. D. A. Tolle.	21
EPA-600/7-79-074. Western Energy Sulfate/Nitrate Monitoring Network Progress Report. Michael J. Pearson.	187

	Pg. No.
EPA-600/7-79-077. Environmental Residuals Output Model for Operation and Expansion of an Electric Power System. Barry D. Evans.	70
EPA-600/7-79-078. Fugitive and Fine Particle Control Using Electrostatically Charged Fog. Stuart A. Hoenig.	154
EPA-600/7-79-079. Applicability of the Thermal DeNO_x Process to Coal-Fired Utility Boilers. G. M. Varga.	133
EPA-600/7-79-080. Computer Processing Results of Scanner Data Over Selected Coal Strip Mines. Charles E. Tanner.	187
EPA-600/7-79-082a. Energy From the West: Impact Analysis Report Volume I: Introduction and Summary. Irvin L. White.	62
EPA-600/7-79-082b. Energy From the West: Impact Analysis Report Volume II: Site-Specific and Regional Impact Analyses. Irvin L. White.	62
EPA-600/7-79-083. Energy From the West: Policy Analysis Report. Irvin L. White.	62
EPA-600/7-79-084. The Analysis of Suspended Particulates and Sulfates: A Way to Begin. Walter Liggett.	209
EPA-600/7-79-085. Wet/Dry Cooling and Cooling Tower Blowdown Disposal in Synthetic Fuel and Steam-Electic Power Plants. Harris Gold.	70
EPA-600/7-79-086. Critical Evaluation of Differential Pulse Polarography for Determining Chromium(III) and Chromium(VI) in Water Samples. Lyman H. Howe.	187
EPA-600/7-79-087. Test of Fabric Filtration Materials. Jan R. Koscianowski.	154
EPA-600/7-79-088. Surface Reactions of Oxides of Sulfur. J. H. Lunsford.	209
EPA-600/7-79-090. Nonwater Quality Impacts of Closed-Cycle Cooling Systems and the Interaction of Stack Gas and Cooling Tower Plumes. G. A. Englesson.	71
EPA-600/7-79-091. Nuclear Power Plant Waste Heat Horticulture. T. Sproston.	71

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